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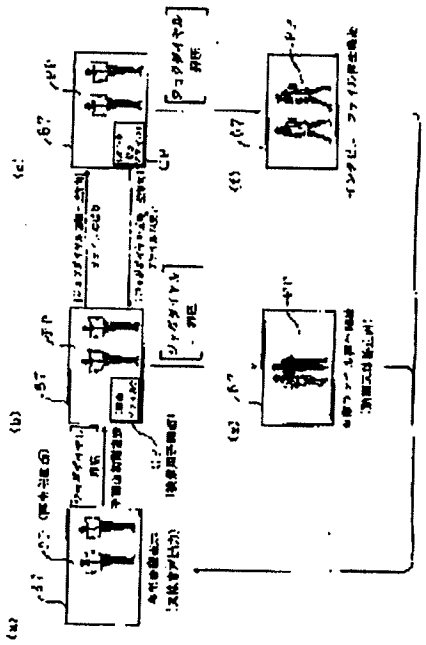
(54) RECORDING AND/OR REPRODUCING DEVICE AND INFORMATION PROCESSING METHOD

(57)Abstract:
PROBLEM TO BE SOLVED: To improve usability by a user by equipping a video camera with a function of performing retrieval while displaying a file reproduction picture.
SOLUTION: When data recorded on a recording medium are displayed, a reproduction main picture and a subordinate picture for retrieval are displayed on one display panel at the same time. In the reproduction main picture, data to be reproduced and outputted are reproduced and displayed and in the subordinate picture for retrieval, some of the data recorded on the recording medium and related subordiante data are displayed as thumbnails. Then, operation for reproducing data displayed in a 2nd display area can be done.



TECHNICAL FIELD

[Field of the Invention]This invention is concerned with the information processing method in such the record and/or playback equipment whose reproduction is enabled at least about the data recorded on the recording medium, and record and/or playback equipment.
It shall be related with the composition for specifying and carrying out the reproducing output of the data recorded on the recording medium.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]By the way, when it is considered as a user interface to which it is operated to the retrieval picture as a thumbnail indication as above-mentioned drawing 17 explained, for example, and the repeat display of the file is carried out, while reproduction of this file is performed -- the display screen P -- the display of a reproduced image will be mostly performed using all the viewing areas. Therefore, file search using a display screen can be performed in the meantime. If it thought that a user wanted to search other files while reproducing a certain file, for example, old file reproduction for example, by and the thing made to once end. For example, it is necessary to make it return to the thumbnail indication screen shown in drawing 17 (a) again from the reproduction screen shown in drawing 17 (b). That is, in the former, if file search cannot be performed and a user's user-friendliness is taken into consideration at the same time it displays a file reproduction screen, it will be preferred that the function which enabled it to search displaying such a file reproduction screen is given.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]It is an explanatory view showing the track structure of the disk corresponding to the video camera of an embodiment of the invention.
[Drawing 2]It is an explanatory view expanding and showing the track portion of the disk corresponding to the video camera of an embodiment.
[Drawing 3]It is an explanatory view showing the specification of the disk corresponding to the video camera of an embodiment.
[Drawing 4]It is a block diagram of the internal configuration of the video camera of an embodiment.
[Drawing 5]It is a block diagram of the internal configuration of the media drive part of the video camera of an embodiment.
[Drawing 6]It is the side view and top view of a video camera of an embodiment.
[Drawing 7]It is the front view and rear elevation of a video camera of an embodiment.
[Drawing 8]It is a perspective view showing a motion of a movable panel part.
[Drawing 9]It is a key map showing the example of a data structure in the disk corresponding to an embodiment.
[Drawing 10]It is a key map in which making the example of a data structure in the disk corresponding to an embodiment correspond to the physical field of a disk, and showing

it.
[Drawing 11]It is an explanatory view showing the example of a display style of the operation screen (thumbnail indication) in the video camera of this embodiment.
[Drawing 12]It is an explanatory view showing the operation instances to a reproduction menu screen key.
[Drawing 13]It is an explanatory view showing the file search function as the 1st example of this embodiment with the display style of the display panel 67.
[Drawing 14]It is a flow chart which shows the processing operation for realizing the file search function as the 1st example.
[Drawing 15]It is an explanatory view showing the system configuration example corresponding to the file search function as the 2nd example.
[Drawing 16]It is a flow chart which shows the processing operation for realizing the file search function as the 2nd example.
[Drawing 17]It is an explanatory view showing the procedure for the file search as a conventional example.
[Description of Notations]
[Description of Notations]
1 A lens block and 2 A camera block, 3 video-signal-processing parts, 4 A media drive part, 5 deck parts, and 6 A display / picture / voice input/output part, 6A An indicator and 6B A touch panel and 7 A final controlling element, 8 external interfaces, 9 A power source block and 11 An optical system, 12 motor sections, and 22 Sample hold/AGC circuit, 23 An A/D converter and 24 A timing generator and 25 Camera controller, 31 Data processing/system control circuit, and 32 Buffer memory, 33 A video signal processing circuit and 34 A memory, 35 motion detection circuits, and 36 Memory, 37 A speech compression encoder / decoder, and 38 Video controller, 39 program memory, 41 MD-DATA2 encoder / decoder, 42 A buffer memory and 43 A binarization circuit, 44 RF-signal processing circuit, 45 A servo circuit and 46 A driver controller and 51 Disk, 52 A spindle motor, 53 optical heads, 54 magnetic heads, and 55 A thread motor, 61 video D/A converter, 62 display controllers, 63 composite-signal processing circuit, 64 A/D converters, 65 D/A converters, and 66 Amplifier, 67 A display panel, 101 RF amplifiers, 103 AGC / clamp circuit, 104 An equalizer/PLL circuit, 105 Viterbi decoders, a 106 RLL (1, 7) demodulator circuit, 107 Matrix amplifier, a 108 ADIP band pass filter, 109 An A/B track detector circuit, a 110 ADIP decoder, a 111 CLV processor, 112 A servo processor and 113 A servo driver and 114 Data bus, 115 Scramble / EDC encode circuit, a 116 ECC processing circuit, 117 Descrambling / EDC decode circuit, a 118 RLL (1, 7) modulation circuit, 119 A magnetic head driving circuit and 120 A laser driver, a 121 transfer-clock generation circuit, 201 A camera lens, 202 microphones, 203 movable panel parts, 204 A viewfinder and 205 A loudspeaker and 300 Main dial, 301 A release key, 302 delete keys, and 303 Jog dial, A 304-phot key and 305 [Reproduction/Pause key, 309 stop keys, a 310 slow-reproduction key, and 311,312 / A search key, 313 recording keys,] A zoom key and 306 A focal key and 307 A backlight correction key and 308 314 A screen display key and 315,316 A volume key and 320 Pen, 400 A server and A-1 Information-display area, A-2 thumbnail-indication area, A-3 Menu key area, A-4 scroll bar, A5 track information display area, i1-i10, i20 - i21 (displayed on a thumbnail image) icon, Ld [A track, A21 thumbnail-image display area, A22 page-change area, A23 manual-operation-button area] A land and NWG A non

wobbled groove and WG A wobbled groove, Tr-A, and Tr-B

PRIOR ART

[Description of the Prior Art]For example, it is performed that it is made to search by displaying what is called two or more thumbnail images in table of contents (thumbnail indication) as a method for searching the file of image data, such as video, a still picture, etc. which were recorded on the recording medium. A thumbnail image means the picture displayed with the gestalt which reduced the representation screen by a still picture etc. rather than usual into 1 screen so that might be represented for every file currently recorded on the recording medium.
[0003]Drawing 17 (a) shows the example of a thumbnail indication. When performing a thumbnail indication generally, as shown, for example in this figure, dividing the one display screen P into two or more division display areas is performed. In this case, the case where one screen is divided into nine division display areas is shown. Here, the number shown by ** - ** to each division display areas is attached for convenience. and the thumbnail image SN for every file it is supposed as opposed to these division display areas that is recorded on a certain recording medium, SN, and SN -- it shall be displayed as ... is stuck
[0004]Thus, the user can grasp visually the contents of the graphics file currently recorded on the recording medium, and it becomes possible to search a desired file more nearly promptly and exactly, for example because it is made to perform a thumbnail indication. For example, two or more thumbnail images SN generally displayed by carrying out like above-mentioned drawing 17 (a), SN, SN ... A user chooses the thumbnail image corresponding to a desired file with cursor etc., and is made to have a click etc. operated from inside. Then, from a recording medium, as the image data of the file corresponding to the thumbnail image which the user chose is reproduced, for example, it is shown in drawing 17 (b), it is displayed in the usual size to the display screen P, for example.
[0005]

EFFECT OF THE INVENTION

[Effect of the Invention]As explained above, this invention displays the 1st data that should be carried out a reproducing output from a recording medium to the 1st viewing area (reproduction main screen) in a displaying means (display panel), and. He is trying to display some data (thumbnail image) currently recorded on the recording medium to the 2nd viewing area (child screen for search). When reproduction instruction is performed in the state where the child screen for search is moreover displayed, for example, he is trying for the child screen for search to make a reproduction main screen carry out the display output of the data in which that part is displayed at this time.
[0205]Though the display output of the reproduction main screen reproduced image is carried out, for example and this is seen as this invention by this, by a child screen

display for search, and operation to this, it becomes possible to perform search of data and reproduction related operation simultaneously, and user-friendliness's of a user improves so much.
[0206]As this invention, display the 1st main data that should be carried out a reproducing output from a recording medium to the 1st viewing area (reproduction main screen), or the sub data (thumbnail image of an icon display, etc.) relevant to this 1st main data in a display part (display panel), and. As opposed to the 2nd viewing area (child screen for search), The sub data relevant to the 2nd main data currently recorded on the recording medium is displayed, and when reproduction instruction is performed in the state where the child screen for search is displayed, he is trying for the child screen for search to make a reproduction main screen carry out the display output of the data in which that part is displayed like the above-mentioned composition at this time. And the same effect as the above is acquired by this.
[0207]Also when picture information is not included as a part of the data, he is trying to display the icon etc. which show voice data, for example as sub data, for example like voice data by trying to display sub data about the composition of the above-mentioned invention. In being the data that still picture data accompanies this, he is trying to display this still picture data as auxiliary information with a voice data subject. And this is raising the ease of the visual search about voice data or a voice subject's data, for example.
[0208]If it constitutes so that the 2nd data (namely, file) that is a basis of the above-mentioned composition and should display some data on the 2nd viewing area, for example by the instructing operation by a user can be changed, Since it becomes possible [a user] to perform operation for making the file which should be displayed to the 2nd viewing area change, a search service will be more substantial.
[0209]If it is made to carry out the superimposed display of the 2nd viewing area using the partial area in the 1st viewing area, For example, though there are restrictions that a display screen is comparatively small, it becomes possible to carry out the simultaneous display of the picture to the 1st viewing area and 2nd viewing area, using this display screen effectively.
[0210]It is having a data acquisition means for acquiring the data which should be recorded on a recording medium as this invention, and it becomes possible to acquire a more extensive use. If it has a device which specifically performs the image pick represented by a CCD image sensor, microphone, etc. as a data acquisition means, and sound-collecting, If it becomes suitable as a video camera device, a still camera apparatus, etc. and has an external instrument and an interface which can be communicated, the function to search the data downloaded from the external instrument will be obtained. Since retrieving operation will become light with constituting so that it may correspond to the recording medium in which random access is possible as this invention, it becomes possible to provide the more useful search service for a user.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention is concerned with the information processing

method in such the record and/or playback equipment whose reproduction is enabled at least about the data recorded on the recording medium, and record and/or playback equipment.
It shall be related with the composition for specifying and carrying out the reproducing output of the data recorded on the recording medium.

[0002]
[Description of the Prior Art]For example, it is performed that it is made to search by displaying what is called two or more thumbnail images in table of contents (thumbnail indication) as a method for searching the file of image data, such as video, a still picture, etc. which were recorded on the recording medium. A thumbnail image means the picture displayed with the gestalt which reduced the representation screen by a still picture etc. rather than usual into 1 screen so that might be represented for every file currently recorded on the recording medium.
[0003]Drawing 17 (a) shows the example of a thumbnail indication. When performing a thumbnail indication generally, as shown, for example in this figure, dividing the one display screen P into two or more division display areas is performed. In this case, the case where one screen is divided into nine division display areas is shown. Here, the number shown by ** - ** to each division display areas is attached for convenience. and the thumbnail image SN for every file it is supposed as opposed to these division display areas that is recorded on a certain recording medium, SN, and SN -- it shall be displayed as ... is stuck
[0004]Thus, the user can grasp visually the contents of the graphics file currently recorded on the recording medium, and it becomes possible to search a desired file more nearly promptly and exactly, for example because it is made to perform a thumbnail indication. For example, two or more thumbnail images SN generally displayed by carrying out like above-mentioned drawing 17 (a), SN, SN ... A user chooses the thumbnail image corresponding to a desired file with cursor etc., and is made to have a click etc. operated from inside. Then, from a recording medium, as the image data of the file corresponding to the thumbnail image which the user chose is reproduced, for example, it is shown in drawing 17 (b), it is displayed in the usual size to the display screen P, for example.
[0005]
[Problem(s) to be Solved by the Invention]By the way, when it is considered as a user interface to which it is operated to the retrieval picture as a thumbnail indication as above-mentioned drawing 17 explained, for example, and the repeat display of the file is carried out, while reproduction of this file is performed -- the display screen P -- the display of a reproduced image will be mostly performed using all the viewing areas. Therefore, file search using a display screen can be performed in the meantime. If it thought that a user wanted to search other files while reproducing a certain file, for example, old file reproduction for example, by and the thing made to once end. For example, it is necessary to make it return to the thumbnail indication screen shown in drawing 17 (a) again from the reproduction screen shown in drawing 17 (b). That is, in the former, if file search cannot be performed and a user's user-friendliness is taken into consideration at the same time it displays a file reproduction screen, it will be preferred that the function which enabled it to search displaying such a file reproduction screen is

given.
[0006]
[Means for Solving the Problem]Then, this invention is first constituted as follows as record and/or playback equipment in consideration of the above-mentioned technical problem. That is, a reading means which reads data currently recorded on a recording medium, A displaying means and a directions information input means for inputting predetermined directions information, The repeat display of the 1st data read by reading means to the 1st viewing area in a displaying means is carried out, It is made possible to display a part of 2nd data read by reading means to the 2nd viewing area in a displaying means, and. When directions information for a part of 2nd data being displayed on the 2nd viewing area, and directing reproduction in a directions information input means is inputted, We decided to have a control means which controls a displaying means to carry out the repeat display of the 2nd data in which the part was displayed on the 2nd viewing area until now to the 1st field.
[0007]Also as follows, it constitutes as record and/or playback equipment. That is, a reading means which reads data currently recorded on a recording medium, A displaying means and a directions information input means for inputting predetermined directions information, The 1st main data it is supposed that is recorded on a recording medium, or sub data relevant to this 1st main data is displayed to the 1st viewing area in a displaying means, A display control means whose to display sub data relevant to the 2nd main data it is supposed that is recorded on a recording medium to the 2nd viewing area in a displaying means it is made possible, When directions information for sub data relevant to the 2nd main data of the above being displayed on the 2nd viewing area, and directing reproduction in a directions information input means is inputted, We decided to have a reproduction control means which performs control so that the reproducing output of the 2nd main data in which the sub data was displayed on the 2nd viewing area of the above until now may be carried out.
[0008]It constitutes as follows as an information processing method. That is, a read-out procedure which reads data currently recorded on a recording medium, The repeat display of the 1st data read by the above-mentioned read-out procedure to the 1st viewing area in a display part is carried out to a directions information inputting procedure for inputting predetermined directions information, It is made possible to display a part of 2nd data read by read-out procedure to the 2nd viewing area in a display part, and. When directions information for a part of 2nd data being displayed on the 2nd viewing area, and directing reproduction by a directions information inputting procedure is inputted, It constitutes so that a control procedure controlled to carry out the repeat display of the 2nd data in which the part was displayed on the 2nd viewing area until now to the 1st field may be performed.
[0009]A read-out procedure which reads data currently recorded on a recording medium, As opposed to a directions information inputting procedure for inputting predetermined directions information, and the 1st viewing area in a display part, The 1st main data it is supposed that is recorded on a recording medium, or sub data relevant to this 1st main data is displayed, A display control procedure whose to display sub data relevant to the 2nd main data it is supposed that is recorded on a recording medium to the 2nd viewing area in a display part it is made possible, When directions information for sub data relevant to the 2nd main data of the above being displayed on the 2nd viewing area, and

directing reproduction by a directions information inputting procedure is inputted, It constitutes so that a reproduction control procedure of performing control so that the reproducing output of the 2nd main data in which the sub data was displayed on the 2nd viewing area until now may be carried out may be performed.
[0010]According to each above-mentioned composition, it is in charge of a display about data given to being recorded on a recording medium, and a display by two viewing areas of a display and the 2nd viewing area by the 1st viewing area is simultaneously performed in an one display screen (displaying means, display part) top. And a repeat display of data which should be carried out a reproducing output in the 1st viewing area, or a display of sub data in which data during a reproducing output can be shown is performed, and a part or related sub data of data currently recorded, for example on a recording medium is displayed in the 2nd viewing area. Operation for reproducing data in which the sub data related in part is displayed on the 2nd viewing area on it is also enabled. Information which may grasp visually data currently recorded on a recording medium simultaneously with a repeat display of this, i.e., data, is displayed, and it means further that reproduction operation can be performed to this 2nd viewing area.
[0011]
[Embodiment of the Invention]Hereafter, the embodiment of the invention is described. The case where it is carried in the portability type video camera in which the recording and reproducing device part in which record reproduction, such as a camera device part, a picture (a still picture or an animation), and a sound, is possible was unified as record and/or playback equipment of this embodiment is mentioned as an example. The recording and reproducing device part carried in the video camera of this embodiment has the composition which is known as a kind of a magneto-optical disc and which carries out record reproduction of the data corresponding to what is called a mini disc taken. Explanation is given in the following order.
1. the example of disk structure 6. thumbnail image generation processing 7. script 8. operation screen display 9. book embodiment corresponding to the composition 5. book embodiment of the internal configuration 4. media drive part of the appearance composition 3. video camera of a disc format 2. video camera the file search function 9-1. 1st example. 9-2. The 2nd example [0012]1. The recording and reproducing device part carried in the video camera of the example of a disc format book is supposed that the format which performs record/playback of data corresponding to a mini disc (magneto-optical disc) and which is called MD data is supported. Although two kinds of formats called MD-DATA1 and MD-DATA2 are developed as this MD data format, The video camera of this example is having record reproduction performed rather than MD-DATA1 corresponding to the format of MD-DATA2 whose high density recording is made possible. Then, the disc format of MD-DATA2 is explained first.
[0013]Drawing 1 and drawing 2 show notionally the example of track structure of the disk as MD-DATA2. Drawing 2 (a) and (b) is the sectional view and top view expanding and showing the portion bundled with the dashed line A of drawing 1, respectively. As shown in these figures, to a disc face, two kinds of grooves (slot) of wobbled groove WG to which the wobble (meandering) was given, and the non wobbled groove NWG to which the wobble is not given are formed beforehand. And as these wobbled groove WG and the non wobbled groove NWG form the land Ld between them, they exist in double spiral shape on a disk.

[0014]Although the land Ld is used in MD-DATA2 format as a recording track (track with which data is recorded), Since wobbled groove WG and the non wobbled groove NWG are formed as mentioned above, it will be formed in the shape of [in which track Tr-A and two tracks of Tr-B are double independently respectively also as a recording track] a spiral (double spiral). Track Tr-A serves as a track with which wobbled groove WG is located in the disk periphery side, and the non wobbled groove NWG is located in the disk inner circumference side. On the other hand, track Tr-B serves as a track with which wobbled groove WG is located in the disk inner circumference side, and the non wobbled groove NWG is located in the disk periphery side. That is, it can be concluded that a wobble is formed only in one side by the side of a disk periphery to track Tr-A, and the wobble was formed only in one side by the side of disk inner circumference as track Tr-B. In this case, a track pitch serves as track Tr-A which adjoins mutually, and distance between each center of track Tr-B, and the track pitch is 0.95 micrometer as shown in drawing 2 (b).

[0015]Here, the wobble formed in the groove as a wobbled groove WG is formed based on the signal with which the physical address on a disk was encoded by FM modulation + biphase abnormal conditions. For this reason, it becomes possible to extract the physical address on a disk by carrying out recovery processing of the reproduction information acquired from wobbling given to wobbled groove WG at the time of record reproduction. Let address information as a wobbled groove WG be an effective thing in common to track Tr-A and Tr-B. That is, it is made for track Tr-A located in inner circumference on both sides of wobbled groove WG and track Tr-B located in a periphery to have the address information by wobbling given to the wobbled groove WG shared. Such an addressing method is also called interlace addressing method. After controlling the cross talk between adjoining wobbles by adopting this interlace addressing method, for example, it becomes possible to make a track pitch small. About the method which records an address by forming a wobble to a groove, it is ADIP (Adress In Pregroove). It is also called a method.

[0016]Discernment any of track Tr-A and Tr-B which share the same address information as mentioned above to trace can be performed as follows. For example, 3 beam methods are applied and two side beams which remain can consider tracing the groove located in both the sides of the track which the above-mentioned main beam is tracing in the state where the main beam is tracing the track (land Ld).

[0017]The state where the main beam spot SPm is tracing track Tr-A is shown in drawing 2 (b) as an example. In this case, side beam spot SPs1 by the side of inner circumference will trace the non wobbled groove NWG among two side beam spot SPs1 and SPs2, and side beam spot SPs2 by the side of a periphery will trace wobbled groove WG. On the other hand, although not illustrated, if it is in the state where the main beam spot SPm is tracing track Tr-B, Side beam spot SPs1 will trace wobbled groove WG, and side beam spot SPs2 will trace the non wobbled groove NWG. By thus, the case where the main beam spot SPm traces the case where track Tr-A is traced, and track Tr-B. As a groove which side beam spot SPs1 and SPs2 should trace, it will be inevitably exchanged by wobbled groove WG and the non wobbled groove NWG.

[0018]As a detecting signal acquired by reflection of side beam spot SPs1 and SPs2 in a photodetector, From a waveform which is different by any shall be traced between wobbled groove WG and the non wobbled groove NWG being acquired. Based on the

above-mentioned detecting signal, by distinguishing which is tracing wobbled groove WG (or non wobbled groove NWG) among present side beam spot SPs1 and SPs2, Which the main beam shall trace between track Tr-A and Tr-B can identify.
[0019]Drawing 3 is a figure showing the main spec. of MD-DATA2 format ** which has the above track structures as compared with MD-DATA1 format. First, as MD-DATA1 format, a track pitch is set to 1.6 micrometers and pit length becomes in 0.59micrometer/bit. It is considered as the laser wavelength of lambda= 780 nm, and is referred to as numerical aperture NA=0.45 of an optical head. The groove-recordings method is taken as a recording method. That is, he is trying to use for record reproduction by using a groove as a track. After forming the groove (track) by a single spiral as an addressing scheme, the method using the wobbled groove which formed the wobble as address information to the both sides of this groove is taken.
[0020]As a modulation method of record data, the EFM (8 -14 conversion) method is adopted. As error correcting system, ACIRC (Advanced Cross Interleave Reed-Solomon Code) was adopted, it collapsed in data interleave and the mold is adopted. For this reason, as relative redundancy of data, it becomes 46.3%.
[0021]In MD-DATA1 format, CLV (Constant Linear Verocity) is adopted as a disk drive system, and it is considered as 1.2 m/s as linear velocity of CLV. And as a data rate of the standard at the time of record reproduction, it is considered as 133 kB/s and set to 140 MB as storage capacity.
[0022]On the other hand, it turns out that a track pitch shall be 0.95 micrometer, pit length is carried out in 0.39micrometer/bit, and it is shorter than both MD-DATA1 formats as MD-DATA2 format to which the video camera of this example can respond. And in order to realize the above-mentioned pit length, for example, as numerical aperture NA=0.52 of the laser wavelength of lambda= 650 nm, and an optical head, the beam spot diameter in a focusing position is extracted, and the zone as an optical system is extended.
[0023]As a recording method, as drawing 1 and drawing 2 explained, a land recording method is adopted and an interlace addressing method is adopted as an addressing scheme. The RLL (1, 7) method (RLL;Run Length Limited) supposed that high density recording is suited as a modulation method of record data is adopted, and a block conclusion type is adopted as a RS-PC method and data interleave as error correcting system. And as a result of adopting the above-mentioned all directions type, as relative redundancy of data, controlling even to 19.7% is possible.
[0024]Also in MD-DATA2 format, although CLV is adopted as a disk drive system, as the linear velocity, it is considered as 2.0 m/s, and is considered as 589 kB/s as a data rate of the standard at the time of record reproduction. And when 650 MB can be obtained as storage capacity and it compares with MD-DATA1 format, it means that high-density-recording-ization of 4 or so times was realized. For example, when compression encoding by MPEG 2 is performed about dynamic image data, it depends also on the bit rate of coding data, noting that video is recorded by MD-DATA2 format, but it is supposed that it is possible to use time and to record the animation for 15 minutes - 17 minutes. When compression processing by ATRAC (Adaptve Transform Acoustic Coding) 2 is performed about voice data noting that only speech signal data is recorded, it can be made time and record of about 10 hours can be performed.
[0025]2. Explain the example of appearance of the video camera of this example to

appearance style Shigeji of a video camera. Drawing 6 (a), (b), and drawing 7 (a) and (b) are a top view of the video camera of this example, a side view, a front view, and a rear elevation, respectively. As shown in these figures, as the camera lens 201 provided with the imaging lens for taking a photograph, the diaphragm, etc. expresses to the front part of the main part 200 of the video camera of this example, it is provided in it. The microphone 202 for collecting an external sound at the time of photography is formed in the same back part bottom of the main part 200. That is, in this video camera, it is supposed that it is possible the recording of the picture photoed with the camera lens 201 and to record the stereo sound which collected the sound with the microphone 202. Here, it shall also have the loudspeaker 205 for outputting a playback voice to the same position as the microphone 202. From the loudspeaker 205, the necessary message sound by a beep sound etc. is also outputted.

[0026]The viewfinder 204 is formed and a picture (it is also called the through drawing), a character image, etc. which are incorporated from the camera lens 201 are displayed on the back side of the main part 200 under recording operation and in the standby middle class. The user can take a photograph, seeing this viewfinder 204. The part in which the main dial 300, the release key 301, and the delete key 302 which are mentioned later were formed has been can be opened and closed as the cell lid part 206, it is opening this cell lid part 206, and it is possible to carry out attach/detach of the battery (battery charger).

[0027]The side side of the main part 200 is equipped with the movable panel part 203. By being supported by this movable supporter 208, it is attached possible movable to the main part 200. A motion of this movable panel part 203 is mentioned later.

[0028]The display panel 67 (display screen) is formed in the back side of the movable panel part 203. Therefore, as shown in drawing 6 (b), when the movable panel part 203 is in a housed state, the display panel 67 will be in the state where it is stored toward the main part side.

[0029]Let the display panel 67 be a part for carrying out the display output of a taken image, the picture reproduced by the internal recording and reproducing device, etc. The message indicator by a character, a character, etc. for telling a user about a necessary message according to operation of apparatus, etc. are performed. Although the display device actually adopted as this display panel 67 is not limited especially here, a liquid crystal display etc. should just be used, for example. The touch panel which the display panel 67 is concerned in pressing operation, for example to the back side of the display surface of a liquid crystal display, and outputs this as operation information is provided. That is, if it is in this embodiment, operation as what is called GUI of performing pressing operation to the picture displayed on the display panel 67 is enabled. Since it has composition which detects the position to which thrust was added to the touch panel as operation to the display panel 67 here as coordinates position information, it is considered as the what thing may be operated with a finger etc. However, the display surface product of the display panel 67 has restriction, and as a finger also shows operation of the pointing to drawing 6 (b) in consideration of being difficult, the stick-shaped pen 320 attaches and is carried out. The user can perform pointing (touch) operation to the display panel 67 instead of a finger using this pen 320.

[0030]The part by the side of the body part 200 by which the movable panel part 203 is stored serves as the disk attach/detach part 205, and the disk as a recording medium with

which the video camera of this example corresponds can be made to insert or discharge in this disk attach/detach part 205.
[0031]Although not illustrated here, headphone / line terminal which outputs a reproduced sound signal actually to the video output terminal, external audio apparatus, and the headphone which output a reproduced image signal etc. to external visual equipment are provided. I/field terminal is provided corresponding to the interface function for performing an external data facility and data communications.
[0032]Various kinds of handlers for user's operation are provided in each part of the main part 200. Hereafter, each handler which becomes main is explained. As the main dial 300 is shown in drawing 7 (b), it is provided in the back side of the main part 200, and let it be a handler which sets up ON and OFF of a video camera, recording operation, and reproduction motion. In this case, rotatably operating can be performed. When the main dial 300 is in power OFF position PS2, a power supply is in the state of OFF. And if rotatably operating of the main dial 300 is carried out, for example from this state and it is referred to as playback / editing position PS1, it will be in the state of a power turn and will be in playback of a recording file, and the mode state in which various editing operation is possible. If referred to as camera mode position PS2, it will become the mode (camera mode) which can record the recording file as an animation or a still picture in the state of a power turn. It will become interview mode if referred to as camera mode position PS2. Although interview mode omits detailed explanation, it is the mode which records with a voice subject, and will record the picture currently photoed at the time as a still picture if pressing operation of the release key 301 or the photograph key 304 later mentioned at the arbitrary times is carried out as recording operation here. And in playback in interview mode, the recording file recorded by this interview mode is played. At this time, reproducing a sound, for example, to the timing at the time of record, as a still picture is switched, it is displayed.
[0033]It has the release key 301 in the center of a rotary part of the main dial 300. This release key 301 functions as a handler for a recording start/end in the state of being in a camera mode or interview mode.
[0034]The jog dial 303 is also formed in main part 200 back part. The jog dial 303 is made into a disc-like handler, and it is attached to right/opposite direction so that rotatably operating is possible, and a click feeling is obtained at given predetermined angle of rotation. Here, the hand of cut which meets in the upper part direction of the arrow mark 303a shown in drawing 7 (b) turns into those for Masakata, and the hand of cut which meets in the bottom direction turns into an opposite direction. The jog dial 311 in this case can perform pressing operation now to the left which the arrow mark 303b shows in drawing 7 (b). Actually, for example by being combined with the rotary encoder of 2 phase type, etc., for example, this jog dial 303 outputs the information on the rotation number of steps corresponding to that hand of cut and angle of rotation, as one click serves as 1 rotation step, for example.
[0035]The delete key 302 functions as a decision key for deleting about the data currently reproduced in the predetermined mode.
[0036]As shown in drawing 6 (a) as main, in main part 200 lateral portion, it has the photograph key 304, the zoom key 305, the focal key 306, and the backlight correction key 307 in a little upward state. The photograph key 304 is a handler which functions as a shutter for recording the recording file of a still picture by carrying out pressing

operation, for example in the state of a camera mode.
[0037]The zoom key 305 is a handler which operates the zoom state (a call side - a wide side) in a lens optical system (camera lens 201). The focal key 306 is a handler for switching the focus conditions (for example, Normal/infinity) of a lens optical system. The backlight correction key 307 is a handler for turning on and off a backlight correction function.
[0038]To main part 200 near lateral portion in which the movable panel part 203 is arranged as it is shown in drawing 6 (b). Mainly as a key about the record reproduction of a file (track), reproduction / Pause key 308, the stop key 309, the slow reproduction key 310, the search key 311,312, and the recording key 313 are formed. As shown in drawing 6 (a), the screen display key 314 for a screen display and the volume key 315,316 for volume control of the output sound from a loudspeaker are formed in the upper face part of the main part 200.
[0039]The appearance of the video camera shown in above-mentioned drawing 6 and drawing 7 is an example to the last, and may be suitably changed according to the service condition etc. which are actually required of the video camera of this example. Of course, several kinds of kinds of handler, an operation system and also contact buttons with an external instrument, etc. are considered variously.
[0040]How to move the movable panel part 203 described previously by drawing 8 is explained. If shown in drawing 8, the appearance of the expedient top of explanation and the video camera is simplified and shown. As it is first shown in drawing 8 (a) as a motion of the movable panel part 203 from the position state shown in drawing 6 (b) and causes in accordance with the direction of arrow YJ1, the position state can be changed. In this case, a display screen (display panel 67) will turn to the direction which counters mostly in the camera lens 201 which it is made to turn to the photography person (viewfinder 204) side, and catches an image pick. In the position state of this display panel, while the photography person who possesses a video camera, for example monitors the image pick displayed on the display panel 67, a photograph can be taken (recording).
[0041]In accordance with the direction of arrow YJ2, the movable panel part 203 can be rotated now in about 180 degrees from the state shown in above-mentioned drawing 8 (a). That is, as it is shown in drawing 8 (b), the display panel 67 can make the photographic subject (camera lens) side a suitable position state. In this state, the user who is in the photographic subject side can see an image pick. When inserting a disk to the disk attach/detach part 205 or removing a disk, as it is shown in this drawing 8 (a) and (b), it is made to be carried out where the movable panel part 203 is started from the main part 200.
[0042]The movable panel part 203 can also be moved in the direction of arrow YJ3 from the state shown in drawing 8 (b). If it does in this way, a graphic display will not be carried out, but it is in the state where the display panel 67 appears from the outside, and will be made for the movable panel part 203 to be in a stowed position.
[0043]When a display panel is rotated in accordance with the direction of arrow YJ2 as mentioned above, how where a display image appears will be reversed in the time of turning to the time [of the display panel 67 turning to the photography person side], and photographic subject side on four directions as it is, but. At this embodiment, such inconvenience is canceled by performing reversing display control according to the

rotation state of the movable panel part 203, so that the display image of the display panel 67 may always appear in a proper direction from a user (a photography person and a photographic subject).
[0044]3. Internal configuration drawing 4 of a video camera is a block diagram showing the example of an internal configuration of the video camera of this example. In the lens block 1 shown in this figure, it has the optical system 11 constituted, for example by having an imaging lens, a diaphragm, etc. actually. The camera lens 201 shown in above-mentioned drawing 6 is contained in this optical system 11. This lens block 1 is equipped with the focal motor for making automatic focusing operation perform to the optical system 11, the zoom motor for moving the zoom lens based on operation of the above-mentioned zoom key 304, etc. as the motor section 12.
[0045]The camera block 2 is equipped with the circuit part for changing into a digital image signal the image light photoed mainly by the lens block 1. To CCD (Charge Coupled Device) 21 of this camera block 2, the optical image of the photographic subject which penetrated the optical system 11 is given. An imaging signal is generated by performing photoelectric conversion about the above-mentioned optical image in CCD21, and sample hold / AGC (Automatic Gain Control) circuit 22 is supplied. In sample hold / AGC circuit 22, a gain adjustment is performed about the imaging signal outputted from CCD21, and waveform shaping is performed by performing sample hold processing. The output of sample hold / AGC circuit 2 is that video A/D converter 23 is supplied, and is changed into the picture signal data as digital.
[0046]The signal-processing timing in the above-mentioned CCD21, the sample hold/AGC circuit 22, and video A/D converter 23 is controlled by the timing signal generated with the timing generator 24. In the timing generator 24, the clock used for signal processing in data processing / system control circuit 31 (inside of the video-signal-processing time part 3) mentioned later is inputted, and a necessary timing signal is generated based on this clock. He is trying to synchronize the signal-processing timing in the camera block 2 with the processing timing in the video-signal-processing part 3 by this. The camera controller 25 performs necessary control so that each above-mentioned functional circuit unit which it has in the camera block 2 may operate properly, and it has the control for auto-focusing, automatic exposure adjustment, diaphragm adjustment, zoom, etc. performed to the lens block 1. For example, if it is autofocus control, the camera controller 25 will control the angle of rotation of a focal motor based on the focal control information acquired according to a predetermined autofocus control system. This will drive an imaging lens so that it may be in a focused state just.
[0047]The digital image signal supplied from the camera block 2 at the time [part / 3 / video-signal-processing] of record, And compression processing is performed about the digital sound signal acquired by having collected the sound with the microphone 202, and the latter media drive part 4 is supplied by using these compressed data as user record data. The digital image signal furthermore supplied from the camera block 2 and the picture generated with the character image are supplied to the viewfinder driving part 207, and it is made to display on the viewfinder 204. At the time of playback, recovery processing is performed about the user regenerative data supplied from the media drive part 4 (read data from the disk 51), i.e., the picture signal data by which compression processing was carried out, and speech signal data, and these are outputted as a reproduced image signal and a reproduced sound signal.

[0048]In this example, as compression / an expansion process method of picture signal data (image data), MPEG(Moving Picture Experts Group) 2 is adopted about video, and it is assumed about a still picture that JPEG (Joint Photographic Coding Experts Group) is adopted. ATRAC (Adaptve Transform Acoustic Coding) 2 shall be adopted as TA compression / expansion process method of an audio signal day.
[0049]Data processing / system control circuit 31 of the video-signal-processing part 3 mainly perform control management about compression/expansion process of the picture signal data in the video-signal-processing part 3 concerned, and speech signal data, and processing for managing input and output of the data which goes via the video-signal-processing part 3. As for the control management about the video-signal-processing part 3 whole including data processing / system control circuit 31, the video controller 38 is made to perform. This video controller 38 is provided with a microcomputer etc., for example, and is constituted, and two-way communication of it is made possible via the camera controller 25 of the camera block 2 and the driver controller 46 of the media drive part 4 mentioned later, the bus line which is not illustrated, for example, etc. That is, the video controller 38 functions as a master controller which controls the whole system.
[0050]To the video controller 38, it has the program memory 39. This program memory 39 is constituted by the rewritable storage cell of EEPROM, a flash memory, etc., for example, and makes the start the various programs which the video controller 38 which is a master controller should execute here, and the information on various information sets etc. is stored.
[0051]As fundamental operation at the time of the record in the video-signal-processing part 3, the picture signal data supplied to data processing / system control circuit 31 from video A/D converter 23 of the camera block 2 is inputted. In data processing / system control circuit 31, the inputted picture signal data is supplied to the motion detection circuit 35. In the motion detection circuit 35, after performing image processing, such as a motion compensation, about the picture signal data inputted while using the memory 36 as workspace, for example, the MPEG 2 video signal processing circuit 33 is supplied.
[0052]In the MPEG 2 video signal processing circuit 33, For example, using the memory 34 as workspace, according to the format of MPEG 2, compression processing is performed about the inputted picture signal data, and it is made to output the bit stream (MPEG 2 bit stream) of the compressed data as video. When extracting the image data as a still picture, for example from the picture signal data as video and performing compression processing to this, it comprises the MPEG 2 video signal processing circuit 33 so that the compressed image data as a still picture may be generated according to the format of JPEG. Treating I picture (Intra Picture) made into regular image data as compressed image data based on the format of MPEG 2 as image data of a still picture, without JPEG adopting is also considered. The picture signal data (compressed image data) by which compression encoding was carried out in the MPEG 2 video signal processing circuit 33 is written in by the predetermined transfer rate to the buffer memory 32, and is held temporarily, for example. In the format of MPEG 2, as everyone knows as what is called the coding bit rate (data rate), Both constant speed (CBR;Constant Bit Rate) and a variable speed (VBR;Variable Bit Rate) shall be supported, and it shall respond to these in the video-signal-processing part 3.
[0053]For example, in performing graphical-data-compression processing by VBR, For example, in the motion detection circuit 35, if a macro block unit performs motion

detection in the range the order tens - in hundreds of frames and image data is made into those with a motion, it will transmit to the MPEG 2 video signal processing circuit 33 by making this detection result into motion vector information. In the MPEG 2 video signal processing circuit 33, the quantization coefficient for every macro block is determined, using necessary information including the above-mentioned motion vector information so that the image data after compression encoding may be made into a certain necessary data rate.

[0054]The sound collected by the microphone 202 is inputted into a speech compression encoder / decoder 37 as speech signal data based on digital one via A/D converter 64 (inside of a display / picture / voice input/output part 6). In a speech compression encoder / decoder 37, compression processing to the speech signal data inputted according to the format of ATRAC2 as mentioned above is performed. The writing by a predetermined transfer rate is performed by data processing / system control circuit 31 to the buffer memory 32, and this compression audio signal data is also held here temporarily.

[0055]To the buffer memory 32, accumulation of compressed image data and compression audio signal data is enabled as mentioned above. The buffer memory 32 mainly has a function for absorbing the speed difference of the camera block 2 or the display / picture / voice input/output part 6, the data transfer rate between the buffer memories 32, and the data transfer rate between the buffer memory 32 and the media drive part 4. If it is the compressed image data and compression audio signal data which were accumulated in the buffer memory 32 at the record time, read-out will be performed by prescribed timing one by one, and they will be transmitted to the MD-DATA2 encoder / decoder 41 of the media drive part 4. However, read-out of the data stored in the buffer memory 32, for example at the time of playback and operation until it records this read data on the disk 51 via the deck part 5 from the media drive part 4 may be performed intermittently. The writing and reading control of data to such a buffer memory 32 are performed by data processing / system control circuit 31, for example.

[0056]As operation at the time of the playback in the video-signal-processing part 3, it is as follows roughly. The compressed image data which was read from the disk 51 and decoded by processing of the MD-DATA2 encoder / decoder 41 (inside of the media drive part 4) according to the MD-DATA2 format at the time of playback, Compression audio signal data (user regenerative data) is transmitted to data processing / system control circuit 31. In data processing / system control circuit 31, the compressed image data and compression audio signal data which were inputted, for example are once stored up in the buffer memory 32. With and the necessary timing and transfer rate in which it was made to be obtained, for example in consistency of a regeneration time axis. Read-out of compressed image data and compression audio signal data is performed from the buffer memory 32, the MPEG 2 video signal processing circuit 33 is supplied about compressed image data, and a speech compression encoder / decoder 37 is supplied about compression audio signal data.

[0057]In the MPEG 2 video signal processing circuit 33, an expansion process is performed about the inputted compressed image data, and it transmits to data processing / system control circuit 31. In data processing / system control circuit 31, this picture signal data by which the expansion process was carried out is supplied to video D/A converter 61 (inside of a display / picture / voice input/output part 6). In a speech compression encoder / decoder 37, an expansion process is performed about the inputted compression

audio signal data, and D/A converter 65 (inside of a display / picture / voice input/output part 6) is supplied.
[0058]In a display / picture / voice input/output part 6, the picture signal data inputted into video D/A converter 61 is changed into an analog picture signal here, to the display controller 62 and the composite signal processing circuit 63, branches and is inputted. In the display controller 62, the indicator 6A is driven based on the inputted picture signal. Thereby, the display of a reproduced image is performed in the indicator 6A. In the indicator 6A, not only the display of the picture acquired by playing from the disk 51 but the image pick produced by taking a photograph as a matter of course by the camera part which consists of the lens block 1 and the camera block 2 can carry out a display output in real time mostly. The message indicator by a character, a character, etc. for telling a user about a necessary message as mentioned above according to operation of apparatus besides a reproduced image and an image pick shall also be carried out. Such a message indicator, for example by control of the video controller 38. What is necessary is just made to perform processing which compounds the picture signal data of a necessary character, a character, etc. from data processing / system control circuit 31 to the picture signal data which should be outputted to video D/A converter 61 so that a necessary character, a character, etc. may be displayed on a position.
[0059]To the indicator 6A, it is that the touch panel 6B is put together, and the display panel 67 is constituted. In the touch panel 6B, the position information on the pressing operation performed to the indicator 6A top is detected, and it outputs to the video controller 38 by making this into operation information.
[0060]In the composite signal processing circuit 63, it changes into a composite signal about the analog picture signal supplied from video D/A converter 61, and outputs to the video output terminal T1. For example, if connection is made with an external monitor device etc. via the video output terminal T1, it will become possible to display the picture played with the video camera concerned with an external monitor device.
[0061]In a display / picture / voice input/output part 6, the speech signal data inputted into D/A converter 65 from the speech compression encoder / decoder 37 is changed into an analog voice signal here, and is outputted to headphone / line terminal T2. Via the amplifier 66, the analog voice signal outputted from D/A converter 65 will branch, and will be outputted also to the loudspeaker 205, and a playback voice etc. will be outputted from the loudspeaker 205 by this.
[0062]In the media drive part 4, at the time of record, according to MD-DATA2 format, mainly encode record data so that disk recording may be suited, and it transmits to the deck part 5, In the time of playback, regenerative data is obtained by decoding about the data read from the disk 51 in the deck part 5, and it transmits to the video-signal-processing part 3.
[0063]The MD-DATA2 encoder / decoder 41 of this media drive part 4, At the time of record, record data (compressed-image-data + compression audio signal data) is inputted from data processing / system control circuit 31, About this record data, predetermined encoding processing according to MD-DATA2 format is performed, and this encoded data is stored in the buffer memory 42 temporarily. And it transmits to the deck part 5, reading to necessary timing.
[0064]At the time of playback, it is read from the disk 51 and decoding according to MD-DATA2 format is performed about the digital regenerative signal inputted via the RF

signal processing circuit 44 and the binarization circuit 43, It transmits to data processing / system control circuit 31 of the video-signal-processing part 3 as regenerative data. If there is necessity in this case, regenerative data will once be accumulated in the buffer memory 42, and it is made to carry out the transmission output of the data read from here to necessary timing to data processing / system control circuit 31. As for such the writing/reading control to the buffer memory 42, the driver controller 46 shall be performed. A servo etc. separate by disturbance etc., for example at the time of playback of the disk 51, If it is made to return the reproduction motion to a disk within the period when read data is accumulated to the buffer memory 42 even when it becomes impossible for the signal from a disk to read, it will become possible to maintain the serial continuity as regenerative data.

[0065]In the RF signal processing circuit 44, servo control signals, such as a focus error signal for the servo control to the RF signal as regenerative data and the deck part 5 and a tracking error signal, are generated by performing necessary processing about the read signal from the disk 51, for example. An RF signal is binary-ized by the binarization circuit 43 as mentioned above, and is inputted into MD-DATA2 encoder / decoder 41 as digital signal data. The generated various servo control signals are supplied to the servo circuit 45. In the servo circuit 45, necessary servo control in the deck part 5 is performed based on the inputted servo control signal.

[0066]In this example, it has the encoder / decoder 47 corresponding to MD-DATA1 format, encoding the record data supplied from the video-signal-processing part 3 according to MD-DATA1 format, and recording it on the disk 51 -- or, About what is encoded according to the MD-DATA1 format, the read data from the disk 51 performs the decoding, and is made possible [also carrying out a transmission output to the video-signal-processing part 3]. That is, as a video camera of this example, it is constituted so that compatibility may be acquired about MD-DATA2 format and MD-DATA1 format. Let the driver controller 46 be the functional circuit unit for controlling the media drive part 4 in the gross.

[0067]Let the deck part 5 be a part which consists of a mechanism for driving the disk 51. Although not illustrated here, in the deck part 5, it is assumed that it has a mechanism (disk slots 203 (refer to drawing 6)) in which the disk 51 with which it should be loaded was made removable, could exchange according to a user's work, and was made. It will be the requisite that the disk 51 here is a magneto-optical disc corresponding to MD-DATA2 format or MD-DATA1 format.

[0068]In the deck part 5, it rotates by CLV with the spindle motor 52 which rotates the disk 51 with which it was loaded by CLV. To this disk 51, a laser beam is irradiated by the optical head 53 at the time of record/playback. In order for the optical head 53 to perform the laser output of a high level for heating a recording track to Curie temperature at the time of record and for a magnetic Kerr effect to detect data from catoptric light at the time of reproduction, the laser output of a low is performed comparatively. For this reason, although a detailed graphic display is omitted here, the detector for detecting the optical system which consists of a laser diode, a polarization beam splitter, an object lens as a laser output means, etc., and catoptric light is carried in the optical head 53. It is held so that displacement in the direction which attaches and detaches on a disk radial and a disk, for example with a biaxial mechanism is possible as an object lens with which the optical head 53 is equipped.

[0069]On both sides of the disk 51, the magnetic head 54 is arranged at the optical head 53 and the position which counters. The magnetic head 54 performs operation which impresses the magnetic field modulated with record data to the disk 51. Although not illustrated, in the deck part 5, it has the thread mechanism driven with the thread motor 55. When this thread mechanism drives, the optical head 53 above-mentioned whole and the magnetic head 54 are made movable to a disk radial.
[0070]The final controlling element 7 is equivalent to the various handlers shown in drawing 6, and the various operation information of the user by these handlers is outputted to the video controller 38. The video controller 38 supplies control information for required operation according to the touch panel 6B described previously and the operation information outputted from the above-mentioned final controlling element 7 to be performed in each part to the camera controller 25 and the driver controller 46.
[0071]The external interface 8 is formed in order to enable mutual transmission of data with the video camera concerned and external instrument, for example, as shown in a figure, it is formed to between I / field terminal T3, and a video-signal-processing part.
[0072]In the case of this embodiment, Ethernet widely used for LAN (Localarea Network) as this external interface 8 shall be adopted. As everyone knows, a transmission line is made into one, structure is also easy, Ethernet's is cheap and it is suitable for building LAN etc. When the external interface 8 corresponds to Ethernet, IP (Internet Protocol) shall be adopted as a communications protocol. And I / field terminal T3 has the terminal shape corresponding to the connector of the cable corresponding to Ethernet, and it has it.
[0073]For example, if the video camera of this embodiment is connected with the transmission line of Ethernet via I / field terminal T3, it will communicate with the personal computer device connected to the transmission line, and other digital image apparatus, and it will become possible to transmit and receive a picture/voice data. It also becomes possible to carry out remote control of the video camera of this embodiment from the apparatus connected via Ethernet depending on composition.
[0074]Although detailed explanation here is omitted, When carrying out the transmission output of the thumbnail image data for a thumbnail indication via the transmission line of Ethernet to a personal computer device, in this embodiment. The thumbnail indication picture created as a HTML form Web file can be outputted now. For this reason, the set (program) for generating the data as a Web file by this HTML form is also stored in the program memory 39, for example.
[0075]As a video camera of this embodiment, the interface for performing transfer of the exterior and data may be suitably added [IEEE1394 interface] besides the above-mentioned Ethernet if needed, for example. That is, as the external interface 8 shown in this figure, two or more interface parts of a standard different, respectively may be provided according to the number of the interface functions actually provided.
[0076]The power source block 9 supplies the power supply voltage of a necessary level to each functional circuit unit using the DC power supply generated from the DC power supply or commercial alternating current power obtained by a built-in battery. According to operation of the main dial 300 mentioned above, the video controller 38 controls the power turn/OFF by the power source block 9. The video controller 38 performs emission operating of the indicator 206 during recording operation.
[0077]4. Explain the detailed composition which extracted the functional circuit unit

corresponding to MD-DATA2 as the composition of a media drive part, then composition of the media drive part 4 shown in drawing 4 with reference to the block diagram of drawing 5. In drawing 5, although the deck part 5 is shown with the media drive part 4, since drawing 4 explained the internal configuration of the deck part 5, drawing 4 and identical codes are attached and explanation is omitted here. Identical codes are given to the range which is equivalent to the block of drawing 4 in the media drive part 4 shown in drawing 5.

[0078]the information (photoelectric current acquired by a photodetector detecting a laser reflection) which was alike by the data reading operation to the disk 51 of the optical head 53, and was detected is supplied to RF amplifier 101 in the RF signal processing circuit 44. In RF amplifier 101, from the inputted detection information, the regenerative RF signal as a regenerative signal is generated, and the binarization circuit 43 is supplied. The binarization circuit 43 acquires the digital-signal-ized regenerative RF signal (binarization RF signal) by performing binarization about the inputted regenerative RF signal. This binarization RF signal is supplied to MD-DATA2 encoder / decoder 41, and after a gain adjustment, a clamping process, etc. are first performed via AGC / clamp circuit 103, it is inputted into an equalizer / PLL circuit 104. In an equalizer / PLL circuit 104, equalizing processing is performed about the inputted binarization RF signal, and it outputs to Viterbi decoder 105. The clock CLK in sync with a binarization RF signal (RLL (1, 7) code sequence) is extracted by inputting the binarization RF signal after equalizing processing into a PLL circuit.

[0079]The frequency of the clock CLK is equivalent to the present disk rotational speed. For this reason, in the CLV processor 111, the clock CLK is inputted from an equalizer / PLL circuit 104, By comparing with the reference value corresponding to a predetermined CLV speed (refer to drawing 3), error information is acquired and this error information is used as a signal component for generating spindle error signal SPE. The clock CLK is used, for example as a clock for the processing in necessary digital-disposal-circuit systems including the RLL (1, 7) demodulator circuit 106.

[0080]Viterbi decoder 105 performs decoding processing according to what is called a Viterbi decoding method about the binarization RF signal inputted from the equalizer / PLL circuit 104. By this, the regenerative data as a RLL (1, 7) code sequence will be obtained. This regenerative data is inputted into the RLL (1, 7) demodulator circuit 106, and let it be the data stream to which the RLL (1, 7) recovery was given here.

[0081]Writing is performed to the buffer memory 42 via the data bus 114, and the data stream obtained by the recovery processing in the RLL (1, 7) demodulator circuit 106 is developed on the buffer memory 42. Thus, the data stream developed on the buffer memory 42 is received, First, according to a RS-PC method, error correction processing by an error correction block unit is performed by the ECC processing circuit 116, and descrambling processing and EDC decoding (error detection processing) are further performed by descrambling / EDC decode circuit 117. The data in which old processing was performed is set to regenerative data DATAp. This regenerative data DATAp is a transfer rate according to the transfer clock generated in the transfer clock generation circuit 121, and will be transmitted, for example from descrambling / EDC decode circuit 117 to data processing / system control circuit 31 of the video-signal-processing part 3.

[0082]The transfer clock generation circuit 121 the clock of a crystal system, for example The data communications between the media drive part 4 and the video-signal-processing

part 3, When performing the data communications between the functional circuit units in the media drive part 4, it is considered as the part for generating the transfer clock (data transfer rate) of the frequency suitably made proper. According to the operating state of the video camera concerned, the clock of the necessary frequency which should be supplied to each functional circuit unit of the media drive part 4 and the video-signal-processing part 3 is generated.

[0083]The detection information (photoelectric current) read from the disk 51 by the optical head 53 is supplied also to the matrix amplifier 107. By performing necessary data processing about the inputted detection information in the matrix amplifier 107, Tracking error signal TE, focus error signal FE, the groove information (absolute address information currently recorded on the disk 51 as a wobbled groove WG) GFM, etc. are extracted, and the servo circuit 45 is supplied. That is, tracking error signal TE and focus error signal FE which were extracted are supplied to the servo processor 112, and the groove information GFM is supplied to the ADIP band pass filter 108.

[0084]The groove information GFM band-limited with the ADIP band pass filter 108 is supplied to the A/B track detector circuit 109, the ADIP decoder 110, and the CLV processor 111. In the A/B track detector circuit 109, based on the method etc. which were explained, for example by drawing 2 (b), From the inputted groove information GFM, the track traced now distinguishes being considered as any of track TR-A and TR-B, and outputs this track discriminating information to the driver controller 46. In the ADIP decoder 110, the inputted groove information GFM is decoded, the ADIP signal which is the absolute address information on a disk is extracted, and it outputs to the driver controller 46. In the driver controller 46, necessary control management is performed based on the above-mentioned track discriminating information and an ADIP signal.

[0085]The groove information GFM through the ADIP band pass filter 108 is inputted into the CLV processor 111 as the clock CLK from an equalizer / PLL circuit 104. In the CLV processor 111, based on the error signal acquired by integrating with a phase error with the clock CLK to the groove information GFM, for example, spindle error signal SPE for CLV servo control is generated, and it outputs to the servo processor 112. The necessary operation which the CLV processor 111 should perform is controlled by the driver controller 46.

[0086]Tracking error signal TE into which the servo processor 112 was inputted as mentioned above, Focus error signal FE, spindle error signal SPE, the track jump instructions from the driver controller 46, Based on access instructions etc., various servo control signals (a tracking control signal, a focus control signal, a thread control signal, a spindle control signal, etc.) are generated, and it outputs to the servo driver 113. In the servo driver 113, a necessary servo drive signal is generated based on the servo control signal supplied from the servo processor 112. As a servo drive signal here, it becomes a 2 axis drive signal (two sorts, a focusing direction and a tracking direction) which drives 2 axis mechanisms, a thread motor driving signal which drives a thread mechanism, and a spindle motor driving signal which drives the spindle motor 52. By such a servo drive signal being supplied to the deck part 5, the focus control and tracking control to the disk 51, and CLV control to the spindle motor 52 will be performed.

[0087]When recording operation is performed to the disk 51, for example, the record data DAT Ar will be inputted to scramble / EDC encode circuit 115 from data processing / system control circuit 31 of the video-signal-processing part 3. This user record data

DAT Ar is inputted synchronizing with the transfer clock (data transfer rate) generated in the transfer clock generation circuit 121, for example.
[0088]In scramble / EDC encode circuit 115, the record data DAT Ar is written in the buffer memory 42, for example, it develops, and data scramble processing and EDC encoding processing (attached processing of the error detection codes by a predetermined method) are performed. The error correction code by a RS-PC method is added by after [116] this processing (for example, an ECC processing circuit) to the record data DAT Ar which the buffer memory 42 is made to develop. The record data DAT Ar to which the processing so far was performed is read from the buffer memory 42, and is supplied to the RLL (1, 7) modulation circuit 118 via the data bus 114.
[0089]In the RLL (1, 7) modulation circuit 118, a RLL (1, 7) modulation process is performed about the inputted record data DAT Ar, and the record data as this RLL (1, 7) code sequence is outputted to the magnetic head driving circuit 119.
[0090]By the way, in the MD-DATA2 format, what is called a laser strobe magnetic-field-modulation method is adopted as a recording method to a disk. A laser strobe magnetic-field-modulation method impresses the magnetic field modulated with record data to a disk recording surface, and it means the recording method to which pulse radiation of the laser beam with which a disk should be irradiated is carried out synchronizing with record data. In such a laser strobe magnetic-field-modulation method, the morphosis of the pit edge recorded on a disk is not dependent on transient characteristics, such as a reversal speed of a magnetic field, and is determined by the irradiation timing of a laser pulse. For this reason, it compares with a simple magnetic-field-modulation method (method it was made to impress the magnetic field which it irradiated with the laser beam regularly to the disk, and was modulated with record data to a disk recording surface), for example, In a laser strobe magnetic-field-modulation method, it is easily made possible to make the jitter of a record pit very small. That is, let a laser strobe magnetic-field-modulation method be a recording method advantageous to high-density-recording-izing.
[0091]In the magnetic head driving circuit 119 of the media drive part 4, it operates so that the magnetic field modulated with the inputted record data may be impressed to the disk 51 from the magnetic head 54. The clock which synchronized with record data from the RLL (1, 7) modulation circuit 118 to the laser driver 120 is outputted. Based on the inputted clock, the laser driver 120 drives the laser diode of the optical head 53 so that the laser pulse synchronized with the record data generated as a magnetic field by the magnetic head 54 may be irradiated to a disk. Under the present circumstances, as a laser pulse by which a radiant power output is carried out from a laser diode, it is based on the necessary laser power which suits record. Thus, recording operation as the above-mentioned laser strobe magnetic-field-modulation method is made possible by the media drive part 4 of this example.
[0092]5. Explain the example of disk structure corresponding to this embodiment, next the example of a data structure of the disk 51 corresponding to this embodiment. The data unit first called the sector in the format of MD-DATA2 and cluster as a premise is described. A sector is the minimum unit of the physical data read from a disk, and PSA (Physical Sector Address) is assigned to each sector. A cluster is made into the minimum unit of the physical data writing to a disk, and PSA is formed by set of the sector of 16 followed to 0 h-Fh. PCA (Physical Cluster Address) is assigned to each cluster. And the

sector in read in area (prima starred area) mentioned later can be specified as a meaning by PCA. The cluster which has PCA with same cluster in recordable area will exist by track Tr-A and every one Tr-B.

[0093]Drawing 9 shows notionally the example of a data management gestalt of the disk 51 it is supposed that is corresponded to this embodiment. It is as drawing 1 and drawing 2 having explained previously the physical format of the disk 51 shown in this figure. In the disk 51, PTOC and RTOC are set up as management information, for example. As for PTOC, necessary management information is recorded by the pit gestalt. The contents of this PTOC are made impossible [rewriting]. Fundamental information required for RTOC to manage the data recorded, for example on the disk is recorded. For example, if it is a case of this example, the information for managing a track (in the case of a file and homonymy, it is ****) and a folder (structure for carrying out grouping of the track and managing it) as data recorded on the disk at the time of record reproduction is stored. According to editing processing results, such as a record result of the data to the disk of the former [contents / of RTOC] for example, and deletion of a track (file) and a folder, it shall be carried out in rewriting one by one.

[0094]An user datum is managed as the volume folder (Volume Folder) placed into one route folder. It defines as a perfect set of an user datum, and this embodiment is specified on the disk of one sheet as volume (Volume) as that in which only one volume exists. And the data contained in this volume will be stored as the folder and track below a volume folder except for what is managed by the above-mentioned PTOC and RTOC.

[0095]Into a volume folder, the volume index track (VIT:Volume Index Track) of prescribed size (for example, 12 clusters) is placed. This volume index track will be what is specified as a field where submanagement information is recorded so to speak, if the above-mentioned PTOC and RTOC make it the main target management information, for example, It has a table where the information for managing a **** property, a title, and the packet data that form a track is recorded on a track (file), a folder, and ancillary data (Auxiliary Data).

[0096]Arrangement of a thumbnail track (Thumbnail Picture Track) is enabled as an option as a track managed within a volume folder. In this embodiment, it matches for each [which was recorded on the disk] file of every, and it is supposed that it is possible to have a still picture of one sheet by prescribed resolution as a thumbnail image. A thumbnail image is treated as a representative picture image for enabling recognition of a file visually. It is recorded on a thumbnail track with the index information data matching with the file (track) currently recorded on the disk and the storing position of a thumbnail image are indicated to be. Data length of a thumbnail track is arbitrarily made extensible according to the number of thumbnail images etc. which are stored.

[0097]And the picture/voice data which the user recorded by photography etc., for example will be managed by a file basis, and will be placed into the folder which is placed under a volume folder as a track, or is placed into a volume folder below at a volume folder. By drawing 9, after one certain file is expressed as one track, the state where this track is stored in one certain folder is shown. A folder is the structure for summarizing a track or a folder in one group, and managing it as mentioned above. Therefore, in the structure below a volume folder, arbitrary numbers of tracks or folders will be stored within limits specified with the maximum number storable in a volume folder, and the maximum number of stages of the layered structure of a folder.

[0098]In a volume folder, the auxiliary data tracks (Auxiliary Data Track) in which ancillary data (Auxiliary Data) is stored are arranged. As information which should be stored in auxiliary data tracks, it is supposed by the application actually applied, for example that it is arbitrary. In this embodiment, the information on the script as reproduction control information will be stored. Although detailed explanation here is omitted, the image data (Image) created by "scribble edit" to a track (recording file) is also stored.
[0099]By the way, information stored in PTOC and RTOC which are the above-mentioned management information, and also a volume index track (even if it names the information on these generically) saying ["management information"] at this embodiment -- carrying out -- for example, it is read at the time of disk charge, for example, is held in the predetermined region of the buffer memory 42 (or buffer memory 32) of the media drive part 4. And at the time of data recording and edit, it is made to rewrite about these management information currently held at the buffer memory according to the record result and edit result, then, the management information of the disk 51 is rewritten based on the contents of the management information currently held at the buffer memory as a predetermined opportunity and timing are also (it updates) -- it is made like (however, updating is not performed about PTOC).
[0100]Drawing 10 makes equivalent to the physical structure of the disk 51 the data management gestalt shown in above-mentioned drawing 9, and shows it. Read in area shown in this figure is the pit area in the disk most inner circumference, and the information on PTOC is recorded here.
[0101]And to the periphery of this read in area, recordable area is formed via transition area. Let this recordable area be a magneto-optical recording field whose magneto-optical recording reproduction is enabled. As drawing 1 and drawing 2 explained this recordable area previously, two tracks, track Tr-A and track Tr-B, are formed on a double spiral.
[0102]If it is in the most inner circumference of recordable area, RTOC area is provided for track Tr-A and Tr-B. And if it is in the RTOC area of track Tr-A, the information on RTOC of the size of four clusters is recorded repeatedly 3 times. And the volume index track of the size of 12 clusters is arranged after this. And if it continues to a volume index track, the thumbnail track is to be arranged as an option. As a thumbnail track in this RTOC area, it is specified as that in which the first one cluster is located at least. And when the number of thumbnail image data increases, for example according to the increase in the number of files and the capacity of the thumbnail track in RTOC area is exceeded, it can record additionally to the recordable data area mentioned later. The thumbnail track on the recordable data area at this time is managed by a volume index track (or RTOC).
[0103]The script which is ancillary data, and the field which records image data can be set up as an option after the thumbnail track of this RTOC area. Also about these scripts and image data, when capacity recordable in RTOC area is exceeded, it can record additionally to a recordable data area with the gestalt managed by a volume index track (or RTOC).
[0104]And a recordable data area is provided from the address position shown from the recordable data area start address W. AV information, i.e., the data of a track (file), is recorded to this recordable data area. The thumbnail image data and ancillary data which were mentioned above being also recordable is used.

[0105]After this recordable data area is completed, it applies to an outermost periphery from the address position shown by the read-out-area start address L, and read out area is formed.
[0106]Field setting out applies to track Tr-A so that drawing 10 may show it also about track Tr-B, although the above-mentioned explanation is related with track Tr-A. However, about RTOC area, it is considered as the undefined at the present stage. That is, RTOC area is made to be used substantially only about track Tr-A.
[0107]The example of disk structure shown in these drawing 9 and drawing 10 is an example to the last, the physical location relation of each area on a disk may be changed according to a actual service condition etc., and the structure where data is stored may also be changed.
[0108]6. Although the thumbnail image stored in the thumbnail track shown in thumbnail image generation processing above-mentioned drawing 9 and drawing 10 is made possible [generating with the video camera of this embodiment], it explains the generation processing of the thumbnail image here. The case where the thumbnail image about the graphics file already recorded on the disk here is generated is explained.
[0109]As mentioned above, for example, the management information (PTOC, RTOC, volume index track) currently recorded on the disk 51 shall be read to the predetermined timing at the time of disk charge, etc., and it shall be stored to the buffer memory 42 (or buffer memory 32).
[0110]And the driver controller 46 refers to the management information stored in the buffer memory 42, for example, It asks for the address on the disk with which the image data specified as a thumbnail image is recorded about the file which should generate a thumbnail image from this, By accessing this address and performing read operation to a disk, the image data as a generator of a thumbnail image is obtained. This image data is transmitted to the video-signal-processing part 3 from the media drive part 4 one by one, and is supplied to data processing / system control circuit 31. If the image data specified as a generator of a thumbnail image by management information does not have special specification, it shall be specified, for example in the frame (or field) image data of the head in a file. [0111]And in data processing / system control circuit 31. The expansion process which controlled the MPEG 2 video signal processing circuit 33, and followed the MPEG 2 format first about the supplied picture data is performed, and the data decoded even on the level of the image data of field drawing image units is gained.
[0112]For example, in the stage of the image data decoded by even the level of the above-mentioned field drawing image units, it is usually considered as data only with the image size (pixel number) mostly displayed with a full size to a display screen. Then, after the full-sized image data based on the above-mentioned field drawing image units is obtained, a reducing process will be performed about this full-sized image data, and it will process so that the size of the thumbnail image actually needed may be obtained. What is necessary is to perform the sampling to picture element data to suitable timing, and just to perform signal processing, for example to the original full-sized image data, for reduction of such image size, so that image data may be reconstructed with this sampled picture element data.
[0113]And the video controller 38 generates the index information data (drawing 9 explains) about the thumbnail image data produced by doing in this way, and it performs control, for example so that this thumbnail image data may be recorded on the thumbnail

track of a disk with these index information data. Thus, the thumbnail image data corresponding for every file is obtained, and it is recorded on a disk.

[0114]As this embodiment, the voice data only based on a sound besides image data (voice data is included), character information, etc. being recordable as a file is used so that old explanation may show, but. For example, when there is no image data which serves as a generator of a thumbnail image in the file, such as voice data and character information. For example, the image data of the pattern which can recognize visually that they are voice data and character information beforehand is prepared (for example, it stores in ROM of the video controller 38, or). What is necessary is just to use this image data as a thumbnail image that what is necessary is just to store in the predetermined region of a disk.

[0115]7. In a script and this embodiment, editing processing, such as giving necessary special effects at the time of the reproduction-orders specification and playback about a file (mainly recording file) which were recorded with the video camera concerned, can be performed. The above edits in carrying out in this embodiment. In [prepare the script as reproduction control information which can give a necessary reproducing output mode about a recording file, and] a video camera, For example, the reproducing output mode (for example, reproduction orders) according to an edit result is obtained because the video controller 38 interprets this script. In an edit stage, it is constituted so that editing processing may be performed by updating the contents of the script. A "script" here has the procedure writing structure described by predetermined program language said, in order to carry out the reproducing output of dynamic image data, still picture information, voice data, the document data, etc. to simultaneous timing.

[0116]Then, the script used as reproduction control information in this embodiment is explained roughly first.

[0117]As this embodiment, SMIL (Synchronized MultimediaIntegration Language) shall be adopted as a script. With SMIL, in order to realize the TV program broadcast on the Internet, a presentation, etc., for example, It is the language with which standardization is performed by W3C (standardization organization of the Internet), and is going to realize a serial presentation etc. based on the grammar of XML (superset of HTML).

[0118]First, scheduling is expressed by two tags, <seq> and <par>. <seq> will mean seqential, i.e., series, and the information surrounded with this tag will be reproduced by time order. <par> means parallel, i.e., parallel, and the information surrounded with this tag will synchronize and will be reproduced.

[0119]When it specifies that it plays in order of video1 ->video2 ->video3 about the file of the image data expressed as video1, video2, and video3 in the file it is supposed here

```
<seq>
  <video src="video1">
  <video src="video2">
  <video src="video3">
</seq>
```

that is recorded, for example on the disk,

```
<seq>
  <play video1>
  <play video2>
  <play video3>
</seq>
```
or

** -- it is made like and description is performed.
[0120]When reproducing in order of file video1 ->video2 ->video3, and audio1 which is a file of voice data is used as a postrecording track and simultaneous reproduction is

```
<seq>
  <par>
    <video src="video1">
    <audio src="audio1">
  </par>
  <video src="video2">
  <video src="video3">
</seq>
```

carried out to video1,

** -- it will be made like and description will be performed.
[0121]The description for specifying this file of a certain being reproduced and making it reproduce from the position of how many seconds after about a certain file and the file which should carry out synchronous reproduction etc. is also prepared. For example, when it seems that a caption (for example, picture as text) is displayed 5 seconds after the graphics file of video1 is displayed (reproduction). < -- par -- > -- < -- video src -- = -- " -- video -- one -- " -- > -- < -- image src -- = -- " -- scratch -- one -- " -- begin -- = -- " -- five -- s -- " -- > -- < -- /-- par -- > -- like -- carrying out -- description -- carrying out -- having -- ******** .
[0122]If it directs to display file picture1 as a still picture file for 5 seconds, for example, it will carry out like <image src="picture1"dur =" 5-s">, and will be described.
[0123]It uses "range", in reproducing, as a part of what is called frame mute flume crack and a certain dynamic image file are extracted. For example, noting that the standard of SMPTE (Society of Motion Picture and Television) is adopted as a time code, It can carry out like <video src="video1"range=" smpte:10:07:00-10:07:33">, and can describe.
[0124]"repeat" is used although repeated by specifying a certain file. For example, if the file of video1 is repeated 10 times, it will carry out like <video src ="video1"repeat ="10">, and will describe.
[0125]And in this embodiment, such a script called SMIL is used and it is constituted so that execution of the display control for giving a necessary display style as a thumbnail indication is possible. For this reason, for example in the video camera system of this embodiment, the subset of XML will be prepared so that interpretation corresponding to this SMIL and description (generation) of a script can be performed. What is necessary is just to enable it to read this by storing in program memory 39 grade beforehand, or recording on it to the application layer of a disk as a program which the video controller 38 should execute, for example.
[0126]In this embodiment, for example in an edit stage (or stage where recording

operation is performed), the video controller 38 shall perform generation or updating, and such a script shall be held in the predetermined region in the buffer memory 32, for example. And it is made it to be recorded on a disk for that a predetermined opportunity or timing is also about the script which did in this way and was held at the buffer memory 32. The data of this script will be stored as a script file to the auxiliary data tracks (Auxiliary Data Track) explained by drawing 9 and drawing 10. Thus, by a script being recorded on a disk, when it next newly loads with this disk, It becomes possible to perform edit playback etc. according to the reproduction orders etc. which were obtained by former edit by reading the script recorded on this disk, for example, making it hold to the buffer memory 32, and referring to this.

[0127]8. Display an operation screen to the display panel 67 in the video camera of an operation screen display book embodiment in performing search of the file recorded on the disk and various edits, and setting processing. He is trying to show the variety of information about the disk with which it is loaded now, the file recorded on this disk, etc. as this operation screen. And the various operations according to a certain purpose are made to realize by concomitant use of the pressing operation (it is called pointing operation henceforth) to this operation screen, and the operation to various handlers. What is called a thumbnail indication that presents the thumbnail image (small image) corresponding for every file recorded on the disk with which it is loaded now as an operation screen of this embodiment is also made to be performed here. That is, a user is seeing the thumbnail image displayed on this operation screen, and can check visually the contents of the file (track) recorded on the disk. The operation to this thumbnail image can perform search, reproduction, etc. of a file.

[0128]Drawing 11 shows the example of a display style of the operation screen displayed on the display panel 67 of the video camera of this embodiment. This operation screen will be displayed as an initial screen, if it is playback/edit mode in the state where it was loaded with the disk, for example.

[0129]If shown in this figure, on the upper row of a viewing area, the information-display area A1 is formed first. In this information-display area A1, the variety of information needed for a user is shown, and here, Battery residual quantity display area A1-1 and sport mode display area A1-2, reproduction mode display area A1-3, record residual time display area A1-4, and disk icon A1-5 are arranged.

[0130]He is trying for the symbol and time of a battery to show battery residual quantity in battery residual quantity display area A1-1. Although detailed explanation is omitted here, in the video camera of this embodiment, setting out of the sport mode which can check the movement toward movement of the photographic subject etc. which top delivery reproduction etc. were performed, for example and the user photoed as reproduction mode is enabled. And in sport mode display area A1-2, setting out of the sport mode will report that the present sport mode is set up in the character "SPORT", for example as shown in a figure. In reproduction mode display area A1-3, a character, a symbol, etc. show various special reproduction modes, such as shuffle reproduction, repeat reproduction, and reproduction between A-B, for example. Record residual time display area A1-4 shows the remaining capacity which can record a disk by time. If disk icon A1-5 is displayed to be loaded with the disk, for example and pointing operation is performed to this disk icon A1-5, It is possible to switch to the display of the disk information screen where the variety of information about the disk with which it is loaded

now is displayed from the operation screen shown in this figure.
[0131]The thumbnail indication area A2 is established in this information-display area A1 bottom. The display of the thumbnail image of a maximum of nine sheets (nine files) is enabled, and the state where the thumbnail image SN of A-I is displayed is shown here. Although not shown here, if the file is a recording file, for example, for example as each thumbnail image SN, the picture extracted in the recording file is actually displayed as a still picture.
[0132]The arrangement order of each thumbnail image SN by the alphabetical order of A-I follows reproduction orders fundamentally here. That is, the display of a thumbnail image is enabled in this embodiment by the predetermined arrangement order according to the file reproduction orders specified in a script. However, if operation of sorting etc. is performed, a thumbnail will be displayed according to the sort order.
[0133]In this case, although the number of thumbnail images which can be displayed at once is set to nine, For example, when there are more tracks (file) currently recorded on the disk than 9, therefore the number of thumbnail images also has them than 9, [more] It can be made to display by performing pointing, for example, performing drag operation to scroll bar A4 displayed on the right of the thumbnail indication area A2, now, scrolling the thumbnail image currently displayed on the thumbnail indication area A2.
[0134]The superimposed display of the various icons is carried out on each thumbnail image SN currently displayed on the thumbnail indication area A2. As these icons, the moving image icon i1 first shows that the file to which the thumbnail image in which the superimposed display of this icon is carried out corresponds is a file which recorded the animation. If it is a case of drawing 11, it will be recognized that a thumbnail image (A, B, C, D, E) is a dynamic image file.
[0135]The icon currently displayed on the thumbnail image (G) is still picture icon i2, and it is shown by this icon that that file is a still picture file. The interview file icon i3 is displayed on the thumbnail image (H), and it is shown that it is the interview file recorded by the interview mode mentioned above.
[0136]Although mentioned above about interview mode, if here describes for the check, it will record with a voice subject, and is the mode which records the picture currently then photoed to arbitrary timing as a still picture. Therefore, it becomes the file which still picture data accompanied to voice data as an interview file. According to the timing at the time of record, the output timing of still picture data to the reproduction progress time of voice data is prescribed by the interview file. And if it is considered, for example as the actual condition of the above-mentioned thumbnail image (H) as an interview file, one of the still picture data recorded along with voice data is chosen, and it is displayed as a reduction image.
[0137]By the way, when it records with interview mode and still picture record is not performed, still picture data will not accompany as an interview file. That is, it becomes a file of only voice data. And when the above-mentioned thumbnail image (H) is a thing corresponding to the interview file of only such voice data, for example. Instead of displaying the reduction image of a still picture, although the graphic display is omitted, the interview file icon i3 enlarged by prescribed size is displayed.
[0138]The group icon i4 is displayed on thumbnail image (I). In the video camera of this embodiment, two or more files which continue in reproduction orders as management on a thumbnail indication are made into 1 conclusion, grouping is carried out, it can do in

this way and the multi-file which carried out grouping can be displayed as one thumbnail image. The group icon i4 is carried out in this way, and a superimposed display is carried out to the thumbnail image corresponding to grouping.
[0139]The icon currently displayed on the thumbnail image (F) is the tickler file icon i5. In the video camera of this embodiment, creation of a user is enabled as one independent file as an edit function in the contents which carried out memo writing. If such a tickler file is inserted before arbitrary files and reproduced, for example, the contents of a title of the file can be displayed by the tickler file. The tickler file icon i5 shows that the file is a tickler file.
[0140]The icon which imitated the pencil currently displayed, for example on the thumbnail image (C, E) is the scribble icon i6. It is made possible that a user makes a scribble picture add to the already recorded graphics file as an edit function of the video camera of this embodiment by the operation tracks to the panel display 67 performed by the pen 320 grade, sticking operation, such as a stamp image, etc. It is shown that the scribble icon i6 is the file on which it scribbled with this scribble function.
[0141]The mark icon i7 is displayed on the thumbnail image (B, E). The user can attach a mark to arbitrary files by operation which is mentioned later. For example, it is made to mark a user as the memory about the high file of importance for itself. And the mark icon i7 shows that this mark is attached.
[0142]The lock icon i8 is displayed on the thumbnail image (A, E). The user can set up a "lock" by operation which this also mentions later not make a change of deletion, edit, etc., etc. make about arbitrary files. The lock icon i8 shows that the file is locked. The effect icon i9 is displayed on the thumbnail image (A, E) bottom. Although it is supposed in this embodiment that it is possible to give various scene changes and the special reproduction effects, such as a mosaic, to a file, for example, it is shown that the effect icon i9 is the file to which such special effects were given.
[0143]In this embodiment, it is possible to make many attributes, such as classification of the file to which the thumbnail image corresponds, and various setting conditions, recognize visually to a user by carrying out the superimposed display of the various icons on a thumbnail image.
[0144]the picture of a thumbnail image (E) -- ****** -- the pointer icon i10 displayed by making it like, For example, with the pen 320 etc., to the thumbnail image by which pointing operation was carried out, a user moves and is displayed by carrying out pointing operation of the thumbnail image top. And the thumbnail image in which an arrangement indication of this pointer icon i10 is given will be chosen now.
[0145]as the actual condition of the operation screen of this embodiment, The superimposed display of the icon is not carried out about the thumbnail image in which the pointer icon i10 is not arranged, but when the pointer icon i10 has been arranged and selection is performed, the superimposed display of an icon is performed to this thumbnail image.
[0146]And after the user has arranged the pointer icon i10 to a desired thumbnail image, for example, supposing it operates reproduction / Pause key 308, reproduction will be started from the file which this pointer icon i10 is arranged and is chosen. Or if the pointer icon i10 performs pointing operation again to the thumbnail image by which it is indicated by arrangement, reproduction will be started from the track with which this pointer icon i10 is arranged.

[0147]Menu key area A3 as which various menu screen keys are displayed is provided in the left-hand side of the thumbnail indication area A2. In this menu key area A3, an arrangement indication of reproduction menu screen key A3-1, edit menu screen key A3-2, scribble and effect menu screen key A3-3, and studio menu screen key A3-4, setting-out menu screen key A3-5, and advanced menu screen key A3-6 is given from a top at order.
[0148]Reproduction menu screen key A3-1 presents the menu about various reproduction, is a key for setting up, for example, can set up the reproduction mode etc. which are reflected in reproduction mode display area A1-3. The sundry items relevant to edit by the file basis on which edit menu screen key A3-2 was recorded are shown, For example, movement of a track (file), copy, deletion, track division, grouping of a file, and still picture extraction (for example, it is selection of the still picture displayed as a thumbnail image) can be performed. Track information is shown and operation for the shift to the track information screen which can perform various setting out related for every track information can also be performed here.
[0149]A menu for scribble and effect menu screen key A3-3 to set up the various special reproduction effects, such as a scribble function and scene changes (fade-in, fade-out, wipe, etc.), voice special effects, and image special effects (a mosaic, sepia processing), is shown. In the video camera of this embodiment, it has a function which can create an image work simply because a user performs recording and operation according to GUI. The menu corresponding to such a simple image work creation function in studio menu screen key A3-4 is shown.
[0150]A menu for setting-out menu screen key A3-5 to perform various setting out of the luminosity of the screen as the indicator 6A, the shade of a panel color and the luminosity of a view finder, time setting out, a still picture set period, etc., for example is shown. Advanced menu screen key A3-6 presents the menu about connect functions, demonstration modes, etc. with an external instrument, such as a personal computer.
[0151]Track information display area A5 is provided in the lower berth of a viewing area. The information about a track that the thumbnail image chosen in the thumbnail indication area A2 (the pointer icon i10 is arranged) corresponds is displayed on this track information display area A5. Here, the title which a track number is first shown in track number display area A5-1, then is attached to a recording date and its track in time / title display area A5-2 is displayed by turns on every predetermined time (for example, several seconds). The total time of the track is displayed on time display area A5-3. Shortcut icon A5-4 corresponds to the classification of the file to which the thumbnail image chosen corresponds, the existence of grouping setting out, etc., It indicates any of the various icons (for example, the moving image icon i1, still picture icon i2, the interview file icon i3, the group icon i4, the tickler file icon i5) described previously it is. And if pointing operation is performed to this shortcut icon A5-4, it can shift to a track information screen.
[0152]Here, as operation instances to menu key area A3, the case of reproduction menu screen key A3-1 is mentioned as an example, and drawing 12 explains. For example, as it is shown in drawing 12, supposing the pen 320 etc. perform pointing operation as opposed to reproduction menu screen key A3-1, the 1st pop up menu will be displayed. The menu item of "<- Return", "sport analysis mode", a "play mode", and "sorting" is displayed on the 1st pop up menu in this case. It is in the state where this 1st pop up

menu is displayed, and if rotatably operating (or good also as drag operation to a screen with a pen etc., etc.) of the jog dial 303 is carried out, for example, the item chosen will be moved according to that hand of cut. and -- carrying out, for example, as shown in a figure, and choosing a "play mode" -- the jog dial 303 -- pressing operation -- carrying out (or good also as pointing operation beyond fixed time with a pen, etc.) -- the 2nd pop up menu is displayed.

[0153]Here, four items, "Normal", "a disk repeat", a "shuffle", and "an intro scan", are displayed on the 2nd pop up menu. And the user can choose and determine a desired item from the inside of these items on this 2nd pop up menu by performing operation to the 1st above-mentioned pop up menu, and same operation. Thus, the set-up play mode is reflected in the display information of the reproduction mode display area shown, for example in drawing 11.

[0154]9. file search function 9-1. of this embodiment -- suppose that the file search function as this embodiment is explained on the assumption that the 1st example, then the composition of the video camera of this embodiment mentioned above. Even if it is in the state where the reproduced image is displayed to the display panel 67 of a video camera as a file search function to explain henceforth, on this display panel 67, The file in which a reproducing output is possible is searched, and it is made possible to make it shift to the reproduction motion to this searched file for example. Then, suppose first that explanation is given from the 1st example of the file search function of this embodiment.

[0155]Drawing 13 makes the example of an operating procedure corresponding to the file search function as the 1st example correspond with the displaying condition in the display panel 67, and shows it. In drawing 13 (a), it is being, while a video camera's reproduces a certain file, and it is shown in the display panel 67 that it is in the state where the reproduction main screen PP is mostly displayed using all the viewing areas. That is, the reproduced image of a file is in the state where the display output is carried out. At this time, if a refresh file is a dynamic image file, that animation will be displayed, and if it is a still picture file or an interview file, the still picture will be displayed. When the audio interview file is being reproduced, it becomes non-display as the reproduction main screen PP. However, it is also possible to make it display the picture etc. which were designed so that it might be shown that it is an audio interview file, i.e., an audio track, for example.

[0156]And supposing a user performs rotatably operating to the jog dial 303 under the displaying condition shown in this drawing 13 (a), as the display information of the display panel 67 is shown in drawing 13 (b), it will change to it.

[0157]The display of the same reproduction main screen PP is made to continue with having been shown in drawing 13 (a) as display information of the display panel 67 shown in drawing 13 (b), and the superimposed display of the child screen CP for search is carried out, for example to the lower left side on this reproduction main screen PP. The same display style is to display any one of the thumbnail images SN which are actually displayed on the operation screen shown in drawing 11, and were on this child screen CP for search. That is, to the field of this child screen CP for search, if it is a case of this 1st example, the thumbnail image corresponding to the file currently recorded on the disk with which it is loaded now will be displayed. It may be made to display the various icons which should be displayed in each thumbnail image SN explained by drawing 11 at this time. However, since the area size of child screen CP for search is small, omitting the

display about various icons is also considered. it should actually show -- all the icons carried out are not displayed, and it may be made to display a typical icon to such an extent that a kind file can be grasped at least, for example
[0158]Here, about that the thumbnail image of which file should be displayed to the inside of child screen CP for search displayed in first stage according to the above-mentioned rotatably operating of the first jog dial 303, it shall be decided as follows in this embodiment. First, when rotating the jog dial 303 for Masakata (refer to drawing 7 (b)), the thumbnail image corresponding to the file which should be reproduced next in reproduction orders shall be displayed on the basis of the file currently displayed on the present reproduction main screen PP. When an opposite direction (refer to drawing 7 (b)) is made to rotate the jog dial 303, the thumbnail image corresponding to the file which should be reproduced before one in reproduction orders is displayed on the basis of the file currently displayed on the present reproduction main screen PP. Therefore, a user is made [what it is seeing child screen CP for search displayed the first stage according to the rotating operation direction of the jog dial 303, and the file of the next of the file under present reproduction or front reproduction orders is, and] possible [grasping visually] in the stage so far.
[0159]And suppose that rotatably operating to the jog dial 303 was further performed under the state where child screen CP for search is displayed as it is shown, for example in drawing 13 (b). Then, or a file is sent in reproduction orders, it is made for the thumbnail image displayed in child screen CP for search to change according to the hand of cut and the number of clicks of the jog dial 303, as it is returned so that it may be shown as drawing 13 (b) and drawing 13 (c). That is, when rotating the jog dial 303 for Masakata, whenever a click feeling is obtained, it will switch so that the thumbnail image corresponding to the file which serves as the next in reproduction orders one by one may be displayed. On the other hand, when an opposite direction is made to rotate the jog dial 303, whenever a click feeling is obtained, it switches so that the thumbnail image corresponding to a pre- file may be displayed in reproduction orders one by one.
[0160]That is, according to this embodiment, it is supposed that it is possible to perform file search by making the thumbnail image which performs rotatably operating [as opposed to the jog dial 303 as mentioned above], and is displayed on child screen CP for search change as delivery/return is performed, for example for a file according to reproduction orders. And at this time, the reproduction main screen PP is displayed continuously, and it is supposed in the state where the superimposed display of the child screen CP for search is carried out to the display panel 67 therefore that it is possible to perform file search, displaying the image state of the file by which the present reproducing output is carried out.
[0161]And suppose that file search was performed and pressing operation was performed to the jog dial 303 under the state where the thumbnail image corresponding to a certain file is displayed in child screen CP for search, by the rotatably operating of the jog dial 303 above-mentioned, for example. Suppose that the file corresponding to the thumbnail image currently displayed, for example in child screen CP for search was a graphics file as a state at this time of this. That is, suppose that they were a dynamic image file or a still picture file. And this state presupposes that it was a case where it was shown in drawing 13 (b) explained previously. The pressing operation to the above-mentioned jog dial 303 turns into reproduction instruction operation. Therefore, as it was shown in

drawing 13 (b), where the thumbnail image corresponding to a graphics file is displayed in child screen CP for search, supposing pressing operation to the jog dial 303 is performed, As the old reproduction main screen PP, file reproduction is ended and the reproducing output of the file to which the thumbnail image displayed in child screen CP for search until now corresponds is started. And in connection with this, as it is shown in drawing 13 (e), in the display panel 67, the reproduced image of a file in which this reproducing output was started is displayed as the reproduction main screen PP.

[0162]When a change of a refresh file is made as mentioned above, he is trying to make child screen CP for search which was being displayed until now eliminate in this embodiment. And in next, if rotatably operating to the jog dial 303 was performed again, as it explained as transition to drawing 13 (b) from drawing 13 (a), the display of child screen CP for search will be performed again.

[0163]On the other hand, in the state which shows in drawing 13 (c), the thumbnail image corresponding to a certain interview file shall be displayed in child screen CP for search. and, if pressing operation (reproduction instruction operation) to the jog dial 303 was performed under this state, In this case, the reproducing output of the interview file to which the thumbnail image in child screen CP for search shown in drawing 13 (c) as was shown as transition to drawing 13 (f) corresponds is started. When the interview file by which a reproducing output is carried out here is what accompanies a still picture, the still picture in sync with the reproduction timing will be displayed on the display panel 67 shown in drawing 13 (f) as the reproduction main screen PP. On the other hand, only in the case of the voice data in which the interview file by which a reproducing output is carried out does not accompany a still picture, the display panel 67 shown in drawing 13 (f) becomes non-display as mentioned above. That is, image display as the reproduction main screen PP is not performed.

[0164]So that the above explanation may show in this embodiment. It is supposed that it is possible to search a file with displaying child screen CP for search with the reproduction main screen PP to the display panel 67 top, and to switch to reproduction of a desired file by it, making this continue without eliminating the image display during the present reproducing output.

[0165]In above-mentioned drawing 13, although child screen CP for search is displayed on the lower left side of the display panel 67, it does not need to be limited to this and you may be changed actually. Although it is made to carry out the superimposed display of the child screen CP for search to the predetermined region in the reproduction main screen PP here, making it also make it display on a viewing area different, respectively is thought of so that the reproduction main screen PP and child screen CP for search may not lap, for example depending on a display style. As the number of thumbnail images (the number of files) which should be displayed in child screen CP for search, it is not limited to one and displaying the thumbnail image corresponding to two or more files which continue, for example in reproduction orders according to a predetermined array state is also considered.

[0166]Then, the processing operation for realizing the file search function as the 1st example shown in above-mentioned drawing 13 is shown in drawing 14. After the video controller 38 functions as a master controller, for example, processing operation shown in this figure is realized if needed, when data processing / system control circuit 31, and driver controller 46 grade perform control management.

[0167]The processing shown in drawing 14 shall be started from the place which is performing control management for starting playback of a certain specified file from the inside of the file currently recorded on the disk so that it may be shown as processing of Step S101. By this processing, as drawing 13 (a) explained to the display panel 67, for example, the reproduced image display as the reproduction main screen PP is performed to it.
[0168]In the following step S102, after file reproduction is started, it is standing by, and if it was distinguished that rotatably operating to the jog dial 303 was performed here, it will follow that rotatably operating to the first jog dial 303 is performed to Step S103.
[0169]In Step S103, processing for displaying child screen CP for search the first stage is performed according to the rotatably operating to the above-mentioned jog dial 303. As the jam was explained as transition to drawing 13 (b) from drawing 13 (a), it displays the thumbnail image corresponding to the file which should be reproduced by the next of the file under present reproduction, or the file before one as a child screen CP for search according to the hand of cut of the jog dial 303.
[0170]For the purpose, the video controller 38 detects that hand of cut as operation information according to operation of the jog dial 303, for example. And according to the detected hand of cut, the next file of the file during the present playback or the file before one is specified, and the file of the thumbnail image data corresponding to this specified file is read from the thumbnail track of a disk. However, if it is in the state where a thumbnail image is already read from a disk, for example, it is stored in the buffer memory 32, search shall be performed from this buffer memory 32, and required thumbnail image data shall just be read. And the thumbnail image data which was read as mentioned above and acquired so that a superimposed display may be carried out to the position as a child screen CP for search, as it was shown, for example in drawing 13 (b), It compounds on the present reproduced image data as the reproduction main screen PP, and is made to carry out a display output.
[0171]If the initial display of child screen CP for search by the above-mentioned step S103 is completed, in the following step S104, it will be distinguished again whether rotatably operating of the jog dial 303 was performed. The rotatably operating of the jog dial 303 distinguished here is equivalent to delivery / return operation in which the file reproduction orders about the thumbnail image in child screen CP for search explained as transition between drawing 13 (b) and (c) were followed. And when a negative result is obtained in Step S104, it progresses to Step S106, but when an affirmation result is obtained, it progresses to Step S105.
[0172]If it corresponds when it is distinguished that rotatably operating to the jog dial 303 was performed at the above-mentioned step S104, the information on a hand of cut and the number of clicks is acquired as the operation information. Then, in the following step S105, the display control process for changing the thumbnail image displayed on the field of child screen CP for search according to the information on these hands of cut and the number of clicks is performed. In this case, it carries out on the basis of [corresponding to the information on a hand of cut and the number of clicks / now] the file to which the thumbnail image currently displayed to child screen CP for search corresponds, A file to be considered as back in [it] reproduction orders or the target file made in reproduction orders a front is specified, and the field of child screen CP for search is made to carry out the superimposed display of the thumbnail image

corresponding to this specified file. It is made to progress to Step S106 after processing of this step S105 is completed.
[0173]It is distinguished in Step S106 whether jog dial pressing operation was performed. Jog dial pressing operation here turns into determining operation for making the reproduction about the file corresponding to the thumbnail image currently displayed on child screen CP for search start, as explained, for example as transition of drawing 13 (b) -> (e) or drawing 13 (c) -> (f).
[0174]When a negative result is obtained in Step S106, it can be made to return to processing of Step S104, but if the affirmation result was obtained, it will progress to Step S107. In Step S107, the file reproduction motion which was being reproduced first until now is stopped. By this, if the reproduced image was displayed, for example on the display panel, this reproduced image will be outputted. Child screen CP for search which could come, simultaneously was carrying out the superimposed display until now is also eliminated. And access to a file is performed in the following step S108. That is, at the time of the determining operation distinguished by previous Step S106, the video controller 38 recognizes the file to which the thumbnail image currently displayed on child screen CP for search corresponds, and is accessed to the recording position on the disk with which this file is recorded. And if access was completed, file reproduction will be made to start from this access position by returning to Step S101. Thereby, it is searched on child screen CP for search, and reproduction of the file to which selection decision was performed is started. And if this file has the information as image data, to the display panel 67, the display output of that reproduced image will be carried out as the reproduction main screen PP.
[0175]Although that processing was omitted in this figure, For example, under the state where child screen CP for search is displayed, when operation to the jog dial 303 is not performed beyond as for fixed time, the superimposed display of child screen CP for search shall be eliminated, and it shall be carried out in the display only as the reproduction main screen PP. In old explanation, although operation to child screen CP for search shall be performed using the jog dial 303, it is not limited to this and other predetermined handlers may be used.
[0176]9-2. Explain the file search function of this embodiment as the 2nd example, then the 2nd example. It corresponds, when the apparatus which functions as the video camera device of this embodiment, for example as a server is connected via a network as the 2nd example and a communications system is built. Then, first suppose that the example of composition of the communications system corresponding to this 2nd example is explained with reference to drawing 15.
[0177]The example which carried out interconnection of the video camera 0 of this embodiment and the computer paraphernalia as the server 400 is shown in drawing 15 as composition of a communications system. In this case, the video camera 0 and the server 400 are connected by Ethernet. That is, I / field terminal T3 which is an Ethernet terminal of the video camera 0 physically, and the Ethernet terminal by the side of the server 400 are connected by the cable.
[0178]Although the example which connected the video camera 0 and the server 400 alone, respectively is shown in drawing 15, For example, it is good also as a system configuration in which apparatus, such as other computer paraphernalia which were alike so that the video camera 0 might be actually connected to the transmission line of LAN,

and were connected with LAN, and communication are possible. It may have composition which connects the video camera 0 of this embodiment, and other picture voice data record reproduction apparatus as a communications system of this embodiment so that communication is possible. In this case, although the above-mentioned Ethernet may be adopted as an interface for the related communication, For example, in consideration of the apparatus by which interconnection is carried out being picture voice recording playback equipment mutually, other data interfaces, such as IEEE1394 and USB (Unversal Serial Bus), may be adopted. That is, it is necessary not to dare to perform network connection. As an example, if it connects with an IEEE1394 interface, the external interface 8 takes the composition corresponding to an IEEE1394 interface, and I / field terminal T3 has the terminal shape corresponding to IEEE1394, and it will have it. However, it is premised on the case where interconnection of the video camera 0 shown in drawing 15 and the server 400 as a personal computer device is carried out as subsequent explanation.

[0179]Subsequently, the file search function as the 2nd example is explained. As the 2nd example, since the video camera 0 and the server 400 are connected by Ethernet, between the video camera 0 and the server 400, transmission and reception of the data currently recorded on the mutual recording medium are enabled. therefore, the graphics file (a dynamic image file.) currently recorded on recording media, such as a hard disk with which the server 400 side is equipped, for example, if it is a case of this embodiment AV (Audio Visual) files, such as a still picture file and a voice file, can be transmitted from the server 400 to the video camera 0. And in the video camera 0 side, it is supposed that it is possible to receive the file transmitted from the server 400 and to record on a disk. Of course, contrary to ****** and this, the file played from the disk with the video camera 0 is transmitted to the server 400, and it becomes possible [what performs preservation and various processing to the server 400 side about this transmitted data].

[0180]And as the 2nd example of this embodiment, the following file search functions are provided on the assumption that transmission and reception of a picture/voice file are possible as mentioned above. And suppose henceforth that it explains while referring to the flow chart which shows drawing 16 the file search function as the 2nd example.

[0181]In drawing 16, processing of the video camera 0 and processing of the server 400 are shown. Like the case of drawing 14, the video controller 38 shall function as a master controller, and processing of the video camera 0 shall be carried out because data processing / system control circuit 31, and driver controller 46 grade perform processing suitably. On the other hand, processing of the server 400 shall constitute this server 400, for example, CPU in a personal computer device shall be performed.

[0182]In this case, in the video camera 0 side, it is standing by that the demand for making a thumbnail indication start to the display panel 67 occurs in Step S201 first. A thumbnail indication here says carrying out the list display of the thumbnail image about AV file currently recorded on the server (namely, external sauce). And supposing a thumbnail indication starting request occurs, it will be made to progress by prescribed operation for the thumbnail indication start to the final controlling element 7 or transmission of the thumbnail indication starting request command by remote control from the server 400 being performed, for example to Step S202.

[0183]In Step S202, processing for transmitting the command for requiring the data of a thumbnail image from the server 400 is performed.

[0184]To the server 400 side, by Step S301, are standing by reception of the thumbnail-image-data demand command transmitted from the video camera 0 as a client first, and here, If having received the thumbnail-image-data demand command is distinguished, it will transmit thumbnail image data by processing of the following step S302 as the response. . At this time, read the data of the thumbnail image currently recorded, for example on recording media, such as a hard disk, by the server 400 side. Or a thumbnail image is generated based on the partial data of AV file currently recorded on the hard disk, and it is made to carry out the transmission output of the thumbnail image data produced by doing in this way. The information for identifying AV file carried out the origin of it shall also accompany each thumbnail image data file, and the file reproduction and file reading operation according to the operation to subsequent thumbnail indications are made possible by this.
[0185]According to thumbnail image data being transmitted as mentioned above, with the video camera 0, as it is shown as Step S203, the thumbnail image data transmitted is received. He is trying to record this thumbnail image data to a disk in this case. And based on the transmitted thumbnail image data, a thumbnail indication is made to be performed by processing of continuing Step S204 to the display panel 67. What is necessary is for a display style as shown, for example in drawing 11 as the thumbnail indication area A2 just to be made to perform a thumbnail indication at this time.
[0186]And it is supposed that the thumbnail indication as this step S204 is performed continuously, carrying out standby of the reproduction instruction operation as the following step S205, for example. And in this step S205, after choosing a certain thumbnail image on a thumbnail indication, if it is distinguished that reproduction instruction operation was performed, it will be made to progress to Step S206.
[0187]A file request command is transmitted in Step S206. This file request command has a command content for requiring the file (thumbnail image) selected on the thumbnail indication, when receiving reproduction instruction in the above-mentioned step S205.
[0188]To the server 400 side, reception of a file request command is stood by by processing of Step S303. And if the file request command transmitted by processing of the above-mentioned step S206 is received, an affirmation result will be obtained at Step S303, and it will be made to progress to Step S304.
[0189]In Step S304, the file demanded by the above-mentioned file request command is read from a recording medium, and processing for transmitting to the video camera 0 is performed. And reception of the transmitted file and this received record of a file are made to start by processing of Step S207 in the video camera 0 side. And control management for carrying out the reproducing output of the data of the file which received by the video camera 0 side in parallel to this, as it is shown as processing of the following step S208 is performed. That is, if the file which received is an image data file, it will be made to output the picture as the reproduction main screen PP to the indicator 67. This sound will be made to output if it is a file which has voice data. Thus, if it is in the 2nd example, he is trying to display the data transmitted from the server in displaying the reproduced image as the reproduction main screen PP shown, for example in drawing 13 (a).
[0190]After doing in this way and making a reproducing output start, as it is shown as Step S209 which continues actually that a necessary opportunity is also, a state notification is made to be performed to the server 400. Transmit the information which

has necessary information content according to present recovery status, a displaying condition, etc. as this state notification, and if it is in this case, It is assumed that it has the information which identifies the file which is during the present reproduction at least, and the information for identifying the file (thumbnail image) currently displayed on child screen CP for search displayed as mentions later.

[0191]And in the following step S210, control management for continuing reception of a file and record on a disk is performed. Although it is the file which is performing reception and record at this step S210, when it shifts to the processing after Step S208 first, the reception and record of a file which were demanded at previous Step S206 will be performed first. And when it is that reception and record of this file were completed, for example, it chooses from the remaining file suitably and is made to be transmitted to the video camera 0 side one by one from the server 400. As this is mentioned later, the file chosen from the video camera 0 based on the contents of the state notification which transmits one by one is transmitted. And as processing of Step S210, the file transmitted from the server 400 as mentioned above also receives, and record on a disk is made to be performed.

[0192]That is, if it is in this embodiment and there is a margin in the writing/read-out to a memory though the reproducing output of a file is performed, Operation in the background of making a file uploading from the server 400, receiving this, and recording on a disk with the directions as a state notification is made to be performed. About choosing the file which the server 400 should transmit how based on the contents of the notice state, it mentions later.

[0193]In Step S211 supposed that Step S210 is followed in the video camera 0, For example, child screen CP for search which was explained by drawing 13 is displayed, and the control management about the display according to the operation (jog dial rotatably operating) for performing file search on this child screen CP for search, etc. is made to be performed. If rotatably operating to the jog dial 303 is not performed, processing of this step S211 and continuing Step S212 will be omitted, and will be made to progress to Step S214.

[0194]Depending on the processing as Step S212 which can follow Step S211. It has distinguished whether determining operation (jog dial pressing operation) about the file searched on child screen CP for search was performed, and if the negative result was obtained here, it will progress to processing of Step S214. On the other hand, when it is distinguished that determining operation was performed in Step S212, it progresses to Step S213.

[0195]In Step S213, it is distinguished whether the incorporation by the side of the video camera 0 is already completed, and the file as which the reproducing output was specified by the above-mentioned determining operation is recorded on the disk. When an affirmation result is obtained, it can be made to return to Step S208, but in Step S208 in this case, it is made to carry out the reproducing output of the data of the designated file recorded, for example on the disk here. And subsequent processings are performed. When a negative result is obtained in Step S213, Transmission of the file by which reproduction specification was carried out by returning to Step S206 is required, and a reproducing output is made to be performed by performing processing after Step S207 after this, performing reception about the data of this file that received, and record. Anyway, when it is distinguished that determining operation was performed in Step

S212, the reproduction start of a designated file as shown in drawing 13 (b) -> (e) or drawing 13 (c) -> (f) as for the file downloaded from the server 400 is performed.
[0196]By the way, although record of the received file by Step S210 may be performed in such processing, performing file playback to the disk by Step S208, As a video camera of this embodiment, if even the capacity of the buffer memory 32 is enough, such operation will be enabled, for example. By that is, the thing been made to perform writing and read-out at high speed to a disk after accumulating record data and regenerative data to the buffer memory 32. Even if it provides a dormant period in the writing and read operation to a disk, it is supposed that it is possible to perform record reproduction as the serial continuity of record data and regenerative data is not made to stop.
[0197]As processing of Step S214, it is distinguished whether it became the end of reproduction or a reproduction stop. The end of reproduction here is saved, for example by the server 400, for example, refers to that the reproducing output in the video camera 0 about all the files supposed that a reproducing output should be carried out according to reproduction orders was completed. A reproduction stop refers to interrupting old reproducing output operation, for example by reproduction stop operation (or it may be remote control for the reproduction stop from a server) to the video camera 0 side.
[0198]And if the negative result was obtained at the above-mentioned step S214, old reproduction motion is made continued by returning to processing of Step S208. And if jog dial operation for file search was performed, for example, processing according to this will be performed. On the other hand, if the negative result was obtained at Step S214, it will progress to Step S215 and necessary end processing will be performed. The cancel report corresponding to the end of reproduction motion by the side of the video camera 0 is made to be performed as one of the end processing. In the process which has repeated the processing as Steps S206-S214, for example, it should download, when record on the disk about all the files carried out is completed, The processing needed for download of files, such as file reception in the state notification processing and Step S210 by Step S209 and recording processing, is omitted, and is passed.
[0199]From here, the processing after Step S305 which remains is explained as processing by the side of the server 400. In Step S305, reception of the state notification transmitted from the video camera 0 is stood by. And if it is having received the state notification, it will progress to Step S306.
[0200]In Step S306, a file is chosen based on the contents of the state notification which received, and processing for reading this selected file from a recording medium, and carrying out a transmission output is performed.
[0201]Here, as file selection based on the contents of the state notification in the above-mentioned step S306, it shall be carried out in accordance with the following rules.
** When only the reproducing output of the file by the reproduction main screen PP is performed as an operation situation of the video camera 0 and child screen CP for search is not being displayed, In the file which reproduction orders become the back rather than the file under reproducing output with this playback main screen PP, the young file of reproduction orders is most chosen from among the files it is supposed that are not yet recorded on a disk.
** When child screen CP for search is displayed to the reproduction main screen PP top as an operation situation of the video camera 0, choose now the file corresponding to the thumbnail image currently displayed on child screen CP for search.

it is considered so that the file made the highest [a possibility that a reproducing output will be carried out, for example as the actual condition after the file carried out under the present reproducing output] may be chosen and it may upload to the video camera 0 by following the rule described to the above-mentioned ** and **.
[0202]In the following step S307, it is distinguished whether the cancel report transmitted from the video camera 0 was received. Here, when a cancel report was not received and it is distinguished, it progresses to Step S308 and it is distinguished whether transmission of all the files which should transmit to a video camera was completed. If the negative result was obtained, it can be made to return to processing of Step S305 here. On the other hand, when an affirmation result is obtained at the above-mentioned step S307 or Step S308, old processing is terminated and it can be made to return to the original routine.
[0203]This invention is not limited to the above-mentioned composition, and various change of it is enabled. For example, this invention is applicable besides the video camera device shown as an embodiment. That is, as this invention, what is necessary is just audio video apparatus which can reproduce pictures other than a video camera. It is not limited to a disk as a recording medium with which record reproduction is carried out [sound / picture], for example, is considered as a thing that what is necessary is just recording media especially whose random access is made possible, such as a recording medium by memory devices, such as a flash memory.
[0204]
[Effect of the Invention]As explained above, this invention displays the 1st data that should be carried out a reproducing output from a recording medium to the 1st viewing area (reproduction main screen) in a displaying means (display panel), and. He is trying to display some data (thumbnail image) currently recorded on the recording medium to the 2nd viewing area (child screen for search). When reproduction instruction is performed in the state where the child screen for search is moreover displayed, for example, he is trying for the child screen for search to make a reproduction main screen carry out the display output of the data in which that part is displayed at this time.
[0205]Though the display output of the reproduction main screen reproduced image is carried out, for example and this is seen as this invention by this, by a child screen display for search, and operation to this, it becomes possible to perform search of data and reproduction related operation simultaneously, and user-friendliness's of a user improves so much.
[0206]As this invention, display the 1st main data that should be carried out a reproducing output from a recording medium to the 1st viewing area (reproduction main screen), or the sub data (thumbnail image of an icon display, etc.) relevant to this 1st main data in a display part (display panel), and. As opposed to the 2nd viewing area (child screen for search), The sub data relevant to the 2nd main data currently recorded on the recording medium is displayed, and when reproduction instruction is performed in the state where the child screen for search is displayed, he is trying for the child screen for search to make a reproduction main screen carry out the display output of the data in which that part is displayed like the above-mentioned composition at this time. And the same effect as the above is acquired by this.
[0207]Also when picture information is not included as a part of the data, he is trying to display the icon etc. which show voice data, for example as sub data, for example like voice data by trying to display sub data about the composition of the above-mentioned

invention. In being the data that still picture data accompanies this, he is trying to display this still picture data as auxiliary information with a voice data subject. And this is raising the ease of the visual search about voice data or a voice subject's data, for example.
[0208]If it constitutes so that the 2nd data (namely, file) that is a basis of the above-mentioned composition and should display some data on the 2nd viewing area, for example by the instructing operation by a user can be changed, Since it becomes possible [a user] to perform operation for making the file which should be displayed to the 2nd viewing area change, a search service will be more substantial.
[0209]If it is made to carry out the superimposed display of the 2nd viewing area using the partial area in the 1st viewing area, For example, though there are restrictions that a display screen is comparatively small, it becomes possible to carry out the simultaneous display of the picture to the 1st viewing area and 2nd viewing area, using this display screen effectively.
[0210]It is having a data acquisition means for acquiring the data which should be recorded on a recording medium as this invention, and it becomes possible to acquire a more extensive use. If it has a device which specifically performs the image pick represented by a CCD image sensor, microphone, etc. as a data acquisition means, and sound-collecting, If it becomes suitable as a video camera device, a still camera apparatus, etc. and has an external instrument and an interface which can be communicated, the function to search the data downloaded from the external instrument will be obtained. Since retrieving operation will become light with constituting so that it may correspond to the recording medium in which random access is possible as this invention, it becomes possible to provide the more useful search service for a user.

CLAIMS

[Claim(s)]
[Claim 1]Record and/or playback equipment characterized by comprising the following.
A reading means which reads data currently recorded on a recording medium.
A displaying means and a directions information input means for inputting predetermined directions information, The repeat display of the 1st data read by the above-mentioned reading means to the 1st viewing area in the above-mentioned displaying means is carried out, It is made possible to display a part of 2nd data read by the above-mentioned reading means to the 2nd viewing area in the above-mentioned displaying means, and. When directions information for a part of 2nd data of the above being displayed on the 2nd viewing area of the above, and directing reproduction in the above-mentioned directions information input means is inputted, A control means which controls the above-mentioned displaying means to carry out the repeat display of the 2nd data in which the part was displayed on the 2nd viewing area of the above until now to the 1st field of the above.

[Claim 2]As for the above-mentioned control means, a part of 2nd data of the above is displayed on the 2nd viewing area of the above, And the record according to claim 1 and/or playback equipment performing control so that the 2nd data in which the part should be displayed in the 2nd viewing area of the above may be changed, when directions information for directing the 2nd data changing of the above in the above-

mentioned directions information input means is inputted.
[Claim 3]The record according to claim 1 and/or playback equipment, wherein the above-mentioned control means performs control to the above-mentioned displaying means so that a partial area in a viewing area of the above 1st may be displayed as the 2nd viewing area of the above.
[Claim 4]The record according to claim 1 and/or playback equipment characterized by comprising the following.
A data acquisition means for acquiring data which should be recorded on a recording medium.
A recording device for recording data acquired by the above-mentioned data acquisition means on the above-mentioned recording medium.

[Claim 5]The record according to claim 4 and/or playback equipment, wherein the above-mentioned data acquisition means is constituted so that conversion to data which should record an image pick and/or a sound-collecting sound on the above-mentioned recording medium is possible.
[Claim 6]The record according to claim 4 and/or playback equipment, wherein the above-mentioned data acquisition means receives data transmitted from an external instrument and is constituted so that acquisition is possible.
[Claim 7]The record according to claim 1 and/or playback equipment, wherein the above-mentioned recording medium is a recording medium whose random access is made possible.
[Claim 8]Record and/or playback equipment characterized by comprising the following.
A reading means which reads data currently recorded on a recording medium.
A displaying means and a directions information input means for inputting predetermined directions information, As opposed to the 2nd viewing area [in / the 1st main data it is supposed that is recorded on the above-mentioned recording medium, or sub data relevant to this 1st main data is displayed to the 1st viewing area in the above-mentioned displaying means, and / the above-mentioned displaying means], A display control means whose to display sub data relevant to the 2nd main data it is supposed that is recorded on the above-mentioned recording medium it is made possible, When directions information for sub data relevant to the 2nd main data of the above being displayed on the 2nd viewing area of the above, and directing reproduction in the above-mentioned directions information input means is inputted, A reproduction control means which performs control so that the reproducing output of the 2nd main data in which the sub data was displayed on the 2nd viewing area of the above until now may be carried out.

[Claim 9]The record according to claim 8 and/or playback equipment using as voice data data recorded on the above-mentioned recording medium, and being the predetermined picture information which can show that the above-mentioned sub data is voice data.
[Claim 10]The record according to claim 8 and/or playback equipment which data recorded on the above-mentioned recording medium is used as one or more still picture data which accompanies voice data and this, and are characterized by using this still picture data as the above-mentioned sub data.
[Claim 11]Sub data relevant to [in the above-mentioned display control means] the 2nd main data of the above to the 2nd viewing area of the above is displayed, And when

directions information for directing the 2nd data changing of the above in the above-mentioned directions information input means is inputted. The record according to claim 8 and/or playback equipment performing control so that sub data relevant to the 2nd main data of the above which should be displayed in the 2nd viewing area of the above may be changed.
[Claim 12]The record according to claim 8 and/or playback equipment, wherein the above-mentioned display control means performs control to the above-mentioned displaying means so that a partial area in a viewing area of the above 1st may be displayed as the 2nd viewing area of the above.
[Claim 13]The record according to claim 8 and/or playback equipment characterized by comprising the following.
A data acquisition means for acquiring data which should be recorded on a recording medium.
A recording device for recording data acquired by the above-mentioned data acquisition means on the above-mentioned recording medium.

[Claim 14]The record according to claim 13 and/or playback equipment, wherein the above-mentioned data acquisition means is constituted so that conversion to data which should record an image pick and/or a sound-collecting sound on the above-mentioned recording medium is possible.
[Claim 15]The record according to claim 13 and/or playback equipment, wherein the above-mentioned data acquisition means receives data transmitted from an external instrument and is constituted so that acquisition is possible.
[Claim 16]The record according to claim 8 and/or playback equipment, wherein the above-mentioned recording medium is a recording medium whose random access is made possible.
[Claim 17]A read-out procedure which reads data currently recorded on a recording medium, and a directions information inputting procedure for inputting predetermined directions information, The repeat display of the 1st data read by the above-mentioned read-out procedure to the 1st viewing area in a display part is carried out, It is made possible to display a part of 2nd data read by the above-mentioned read-out procedure to the 2nd viewing area in the above-mentioned display part, and. When directions information for a part of 2nd data of the above being displayed on the 2nd viewing area of the above, and directing reproduction by the above-mentioned directions information inputting procedure is inputted, An information processing method constituting so that a control procedure controlled to carry out the repeat display of the 2nd data in which the part was displayed on the 2nd viewing area of the above until now to the 1st field of the above may be performed.
[Claim 18]As for the above-mentioned control procedure, a part of 2nd data of the above is displayed on the 2nd viewing area of the above, And the information processing method according to claim 17 performing control so that the 2nd data in which the part should be displayed in the 2nd viewing area of the above may be changed, when directions information for directing the 2nd data changing of the above by the above-mentioned directions information inputting procedure is inputted.
[Claim 19]The information processing method according to claim 17, wherein the above-mentioned control procedure performs control to the above-mentioned display part so

that a partial area in a viewing area of the above 1st may be displayed as the 2nd viewing area of the above.
[Claim 20]The information processing method according to claim 17, wherein execution of a data acquisition procedure for acquiring data which should be recorded on a recording medium, and a record procedure for recording data acquired by the above-mentioned data acquisition procedure on the above-mentioned recording medium is enabled.
[Claim 21]The information processing method according to claim 20, wherein the above-mentioned data acquisition procedure is constituted so that an image pick and/or a sound-collecting sound may be changed into data which should be recorded on the above-mentioned recording medium.
[Claim 22]The information processing method according to claim 20, wherein the above-mentioned data acquisition procedure is constituted so that data transmitted from an external instrument may be received and acquired.
[Claim 23]The information processing method according to claim 17, wherein the above-mentioned recording medium is a recording medium whose random access is made possible.
[Claim 24]A read-out procedure which reads data currently recorded on a recording medium, and a directions information inputting procedure for inputting predetermined directions information, As opposed to the 2nd viewing area [in / the 1st main data it is supposed that is recorded on the above-mentioned recording medium or sub data relevant to this 1st main data is displayed to the 1st viewing area in a display part, and / the above-mentioned display part], A display control procedure whose to display sub data relevant to the 2nd main data it is supposed that is recorded on the above-mentioned recording medium it is made possible, When directions information for sub data relevant to the 2nd main data of the above being displayed on the 2nd viewing area of the above, and directing reproduction by the above-mentioned directions information inputting procedure is inputted, An information processing method constituting so that a reproduction control procedure of performing control so that the reproducing output of the 2nd main data in which the sub data was displayed on the 2nd viewing area of the above until now may be carried out may be performed.
[Claim 25]The information processing method according to claim 24 using as voice data data recorded on the above-mentioned recording medium, and being the predetermined picture information which can show that the above-mentioned sub data is voice data.
[Claim 26]The information processing method according to claim 24 which data recorded on the above-mentioned recording medium is used as one or more still picture data which accompanies voice data and this, and is characterized by using this still picture data as the above-mentioned sub data.
[Claim 27]Sub data relevant to [in the above-mentioned display control procedure] the 2nd main data of the above to the 2nd viewing area of the above is displayed, And when directions information for directing the 2nd data changing of the above by the above-mentioned directions information inputting procedure is inputted. The information processing method according to claim 24 performing control so that sub data relevant to the 2nd main data of the above which should be displayed in the 2nd viewing area of the above may be changed.
[Claim 28]The information processing method according to claim 24, wherein the above-

mentioned display control procedure performs control to the above-mentioned display part so that a partial area in a viewing area of the above 1st may be displayed as the 2nd viewing area of the above.
[Claim 29]The information processing method according to claim 24, wherein execution of a data acquisition procedure for acquiring data which should be recorded on a recording medium, and a record procedure for recording data acquired by the above-mentioned data acquisition procedure on the above-mentioned recording medium is enabled.
[Claim 30]The information processing method according to claim 29, wherein the above-mentioned data acquisition procedure is constituted so that an image pick and/or a sound-collecting sound may be changed into data which should be recorded on the above-mentioned recording medium.
[Claim 31]The information processing method according to claim 29, wherein the above-mentioned data acquisition procedure is constituted so that data transmitted from an external instrument may be received and acquired.
[Claim 32]The information processing method according to claim 24, wherein the above-mentioned recording medium is a recording medium whose random access is made possible.

CORRECTION OR AMENDMENT

[Kind of official gazette]Printing of amendment by regulation of 2 of Article 17 of Patent Law
[Section classification] The 3rd classification of the part VII gate
[Publication date]March 1, Heisei 19 (2007.3.1)

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[Application number]Application for patent 2000-13930 (P2000-13930)
[International Patent Classification]
H04N 5/91 (2006.01)

H04N 5/225 (2006.01

H04N 5/265 (2006.01

H04N 5/76 (2006.01)

H04N 5/85 (2006.01)

H04N 5/907 (2006.01

G06F 17/30 (2006.01

H04N 5/93 (2006.01)

[FI]
H04N 5/91 J

H04N 5/225 F

H04N 5/225 A

H04N 5/265

H04N 5/76 B

H04N 5/85 Z

H04N 5/907 B

G06F 17/30 170 B

G06F 17/30 170 D

G06F 17/30 380 F

H04N 5/91 N

H04N 5/93 Z

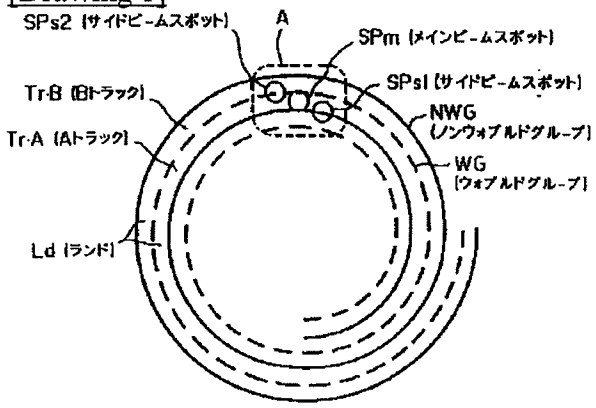
[A written amendment]
[Filing date]January 9, Heisei 19 (2007.1.9)
[The amendment 1]
[Document to be Amended]Specification
[Item(s) to be Amended]The name of an invention
[Method of Amendment]Change
[The contents of amendment]
[Title of the Invention]Record and/or playback equipment, and a regeneration method
[Amendment 2]
[Document to be Amended]Specification

[Item(s) to be Amended]Claim
[Method of Amendment]Change
[The contents of amendment]
[Claim(s)]
[Claim 1]A displaying means,
An input means which inputs directions information,
A control means which carries out the repeat display of the 1st data to the 1st viewing area in the above-mentioned displaying means, displays a part of 2nd data on the 2nd viewing area in the above-mentioned displaying means, and carries out the repeat display of the 2nd data of the above to the 1st viewing area of the above according to reproduction instruction information inputted by the above-mentioned input means,
preparation ****** -- record characterized by things, and/or playback equipment.
[Claim 2]The record according to claim 1 and/or playback equipment being portability types.
[Claim 3]The above-mentioned control means,
Data displayed on the 2nd viewing area of the above is made to change according to changing instruction information inputted by the above-mentioned input means.
The record according to claim 1 and/or playback equipment which are characterized by things.
[Claim 4]The above-mentioned control means,
The above-mentioned displaying means is controlled so that a partial area in a viewing area of the above 1st is displayed as the 2nd viewing area of the above,
The record according to claim 1 and/or playback equipment which are characterized by things.
[Claim 5]The above-mentioned control means,
When carrying out the repeat display of the 2nd data of the above to the 1st viewing area of the above, the 2nd viewing area of the above is made to eliminate.
The record according to claim 1 and/or playback equipment which are characterized by things.
[Claim 6]A data acquisition means made possible [acquiring data, changing into data of a predetermined form and acquiring about an image pick and/or a sound-collecting sound,],
It has a recording device for recording data acquired by the above-mentioned data acquisition means,
The record according to claim 1 and/or playback equipment which are characterized by things.
[Claim 7]It has a data acquisition means which receives data from an external instrument,
The record according to claim 1 and/or playback equipment which are characterized by things.
[Claim 8]A displaying means,
An input means which inputs directions information,
A control means which carries out the repeat display of the 1st main data to the 1st viewing area in the above-mentioned displaying means, and displays sub data on the 2nd viewing area in the above-mentioned displaying means and to which the 1st viewing area of the above is made to carry out the repeat display of the 2nd main data relevant to the above-mentioned sub data according to reproduction instruction information by the

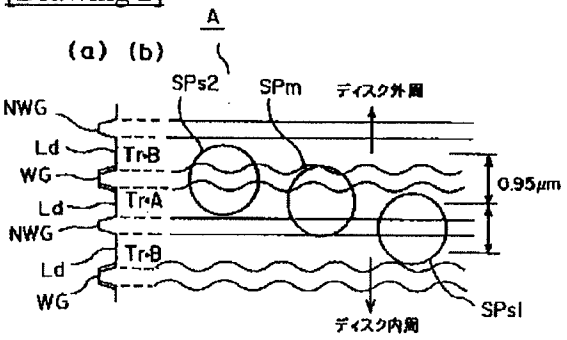
above-mentioned input means,
preparation ****** -- record characterized by things, and/or playback equipment.
[Claim 9]The record according to claim 8 and/or playback equipment being portability types.
[Claim 10]The above-mentioned control means,
Two or more sub data is displayed on the 2nd viewing area of the above in predetermined arrangement,
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 11]It is the picture information which shows that the above-mentioned sub data is audio information,
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 12]They are one or more still picture data which the 2nd main data of the above shows audio information to, and an implication and the above-mentioned sub data show the 2nd main data of the above,
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 13] The above-mentioned control means,
Sub data displayed on the 2nd viewing area of the above is made to change according to changing instruction information inputted by the above-mentioned input means.
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 14]The above-mentioned control means,
The above-mentioned displaying means is controlled so that a partial area in a viewing area of the above 1st is displayed as the 2nd viewing area of the above,
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 15]The above-mentioned control means,
When carrying out the repeat display of the 2nd main data of the above to the 1st viewing area of the above, the 2nd viewing area of the above is made to eliminate.
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 16]A data acquisition means for acquiring data,
A recording device for recording data acquired by the above-mentioned data acquisition means,
preparation ****** -- the record according to claim 8 characterized by things, and/or playback equipment.
[Claim 17]The above-mentioned data acquisition means,
An image pick and/or a sound-collecting sound are convertible for a predetermined data format,
The record according to claim 16 and/or playback equipment which are characterized by things.
[Claim 18]It is made for the above-mentioned data acquisition means to have data received from an external instrument.
The record according to claim 16 and/or playback equipment which are characterized by

things.
[Claim 19]It has a reading means which reads data from a recording medium in which random access is possible,
The record according to claim 8 and/or playback equipment which are characterized by things.
[Claim 20]A step which carries out the repeat display of the 1st data to the 1st viewing area of a displaying means, and displays a part of 2nd data on the 2nd viewing area of this displaying means,
A step to which the 1st viewing area of the above is made to carry out the repeat display of the 2nd data of the above according to reproduction instruction information inputted by an input means,
A ****(ing) regeneration method.
[Claim 21]A step which carries out the repeat display of the 1st main data to the 1st viewing area of a displaying means and on which the 2nd viewing area of this displaying means is made to display sub data,
A step to which the 1st viewing area of the above is made to carry out the repeat display of the 2nd main data relevant to the above-mentioned sub data according to reproduction instruction information inputted by an input means,
A ****(ing) regeneration method.
[The amendment 3]
[Document to be Amended]Specification
[Item(s) to be Amended]0006
[Method of Amendment]Change
[The contents of amendment]
[0006]
[Means for Solving the Problem]
Then, this invention is first constituted as follows as record and/or playback equipment in consideration of the above-mentioned technical problem.
That is, the repeat display of the 1st data is carried out to the 1st viewing area in a displaying means, an input means which inputs directions information, and a displaying means, We decided to have a control means which displays a part of 2nd data on the 2nd viewing area in a displaying means, and carries out the repeat display of the 2nd data of the above to the 1st viewing area according to reproduction instruction information inputted by an input means.
[Amendment 4]
[Document to be Amended]Specification
[Item(s) to be Amended]0007
[Method of Amendment]Change
[The contents of amendment]
[0007]
Also as follows, it constitutes as record and/or playback equipment.

[Drawing 1]



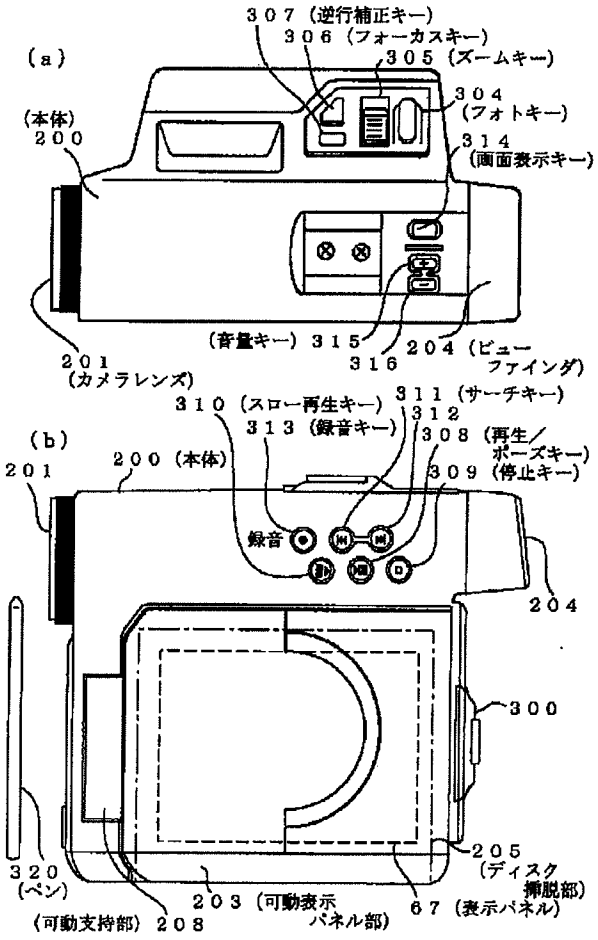
[Drawing 2]



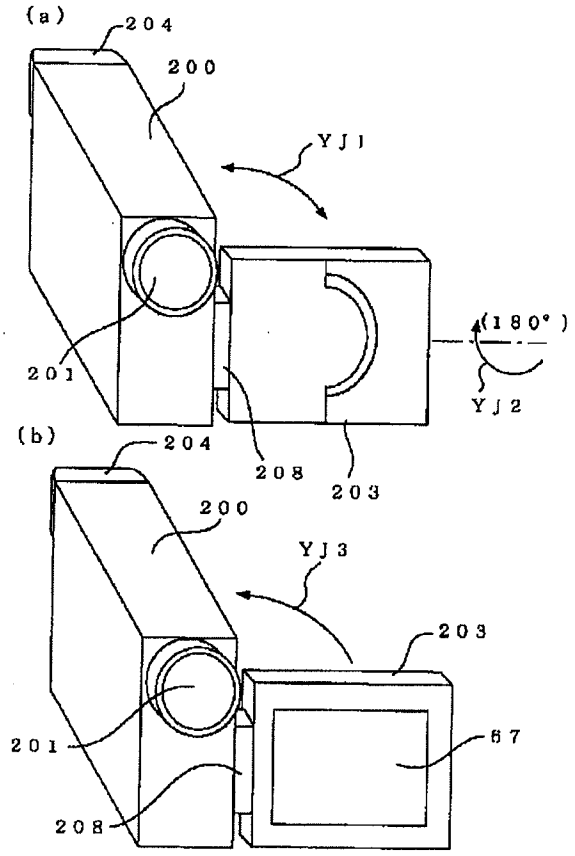
[Drawing 3]

	MD－DATA2	MD－DATA1
トラックピッチ	0．95μm	1．6μm
ピット長	0．39μm／bit	0．59μm／bit
λ・NA	650nm・0．52	780nm・0．45
記録方式	LAND記録	GROOVE記録
アドレス方式	インターレースアドレッシング（ダブルスパイラルの片方ウォブル）	シングルスパイラルの両側ウォブル
変調方式	RLL（1，7）	EFM
誤り訂正方式	RS－PC	ACIRC
インターリーブ	ブロック完結	畳み込み
冗長度	19．7%	46．3%
線速度	2．0m／s	1．2m／s
データレート	589kB／s	133kB／s
記録容量	650MB	140MB

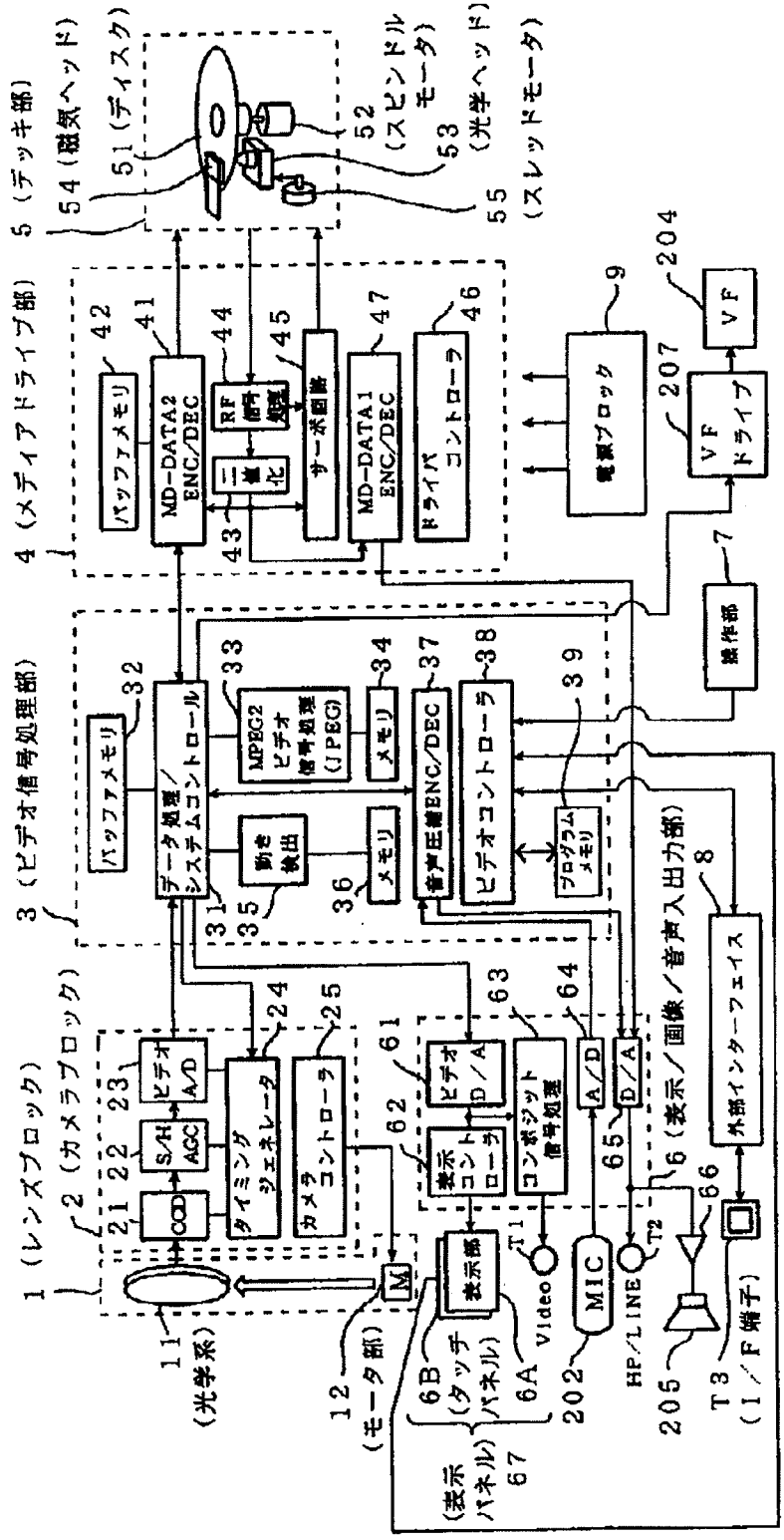
[Drawing 6]


(a)
307 (逆行補正キー)
306 (フォーカスキー)
305 (ズームキー)
304 (フォトキー)
314 (画面表示キー)
(本体) 200
(音量キー) 315
316
204 (ビューファインダ)
201 (カメラレンズ)
(b)
310 (スロー再生キー)
311 (サーチキー)
312
313 (録音キー)
308 (再生/ポーズキー)
309 (停止キー)
201
200 (本体)
録音
204
300
205 (ディスク排脱部)
320 (ペン)
203 (可動表示パネル部)
67 (表示パネル)
(可動支持部) 208

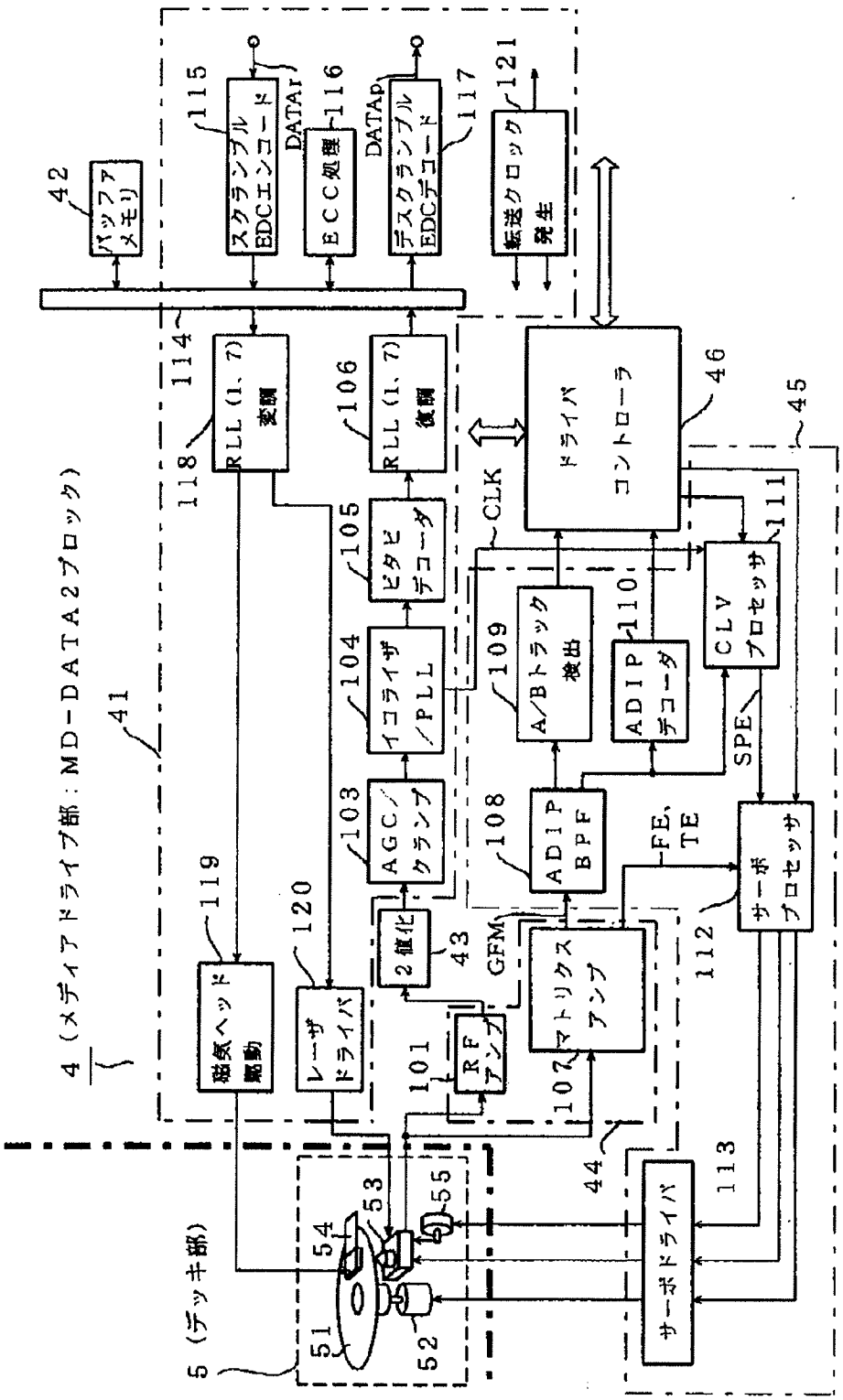
[Drawing 8]



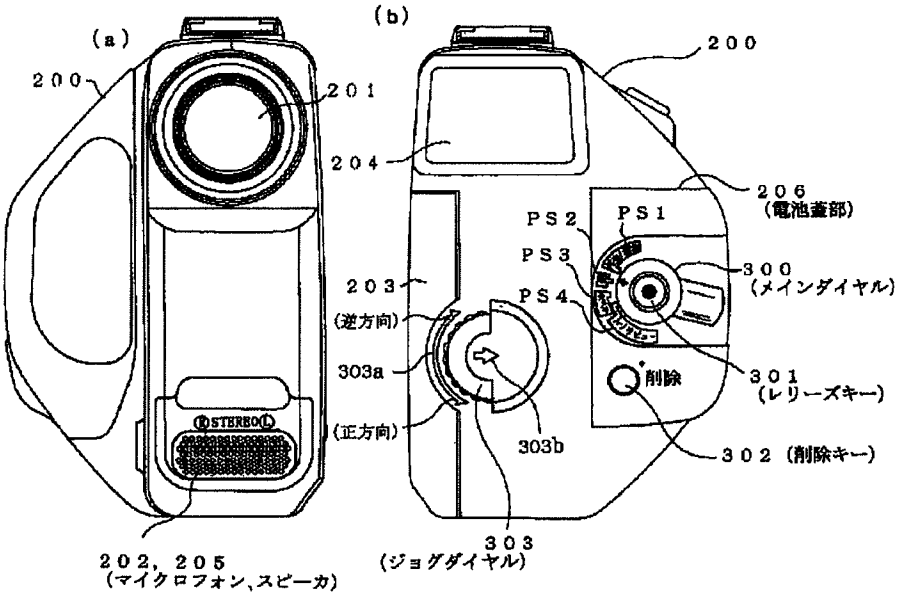
[Drawing 4]


1 (レンズブロック)
2 (カメラブロック)
3 (ビデオ信号処理部)
4 (メディアドライブ部)
5 (デッキ部)
11 (光学系)
12 (モータ部)
21
22
23
24
25
31
32
33
34
35
36
37
38
39
41
42
43
44
45
46
47
51 (ディスク)
52 (スピンドルモータ)
53 (光学ヘッド)
54 (磁気ヘッド)
55 (スレッドモータ)
61
62
63
64
65
66
67
6 (表示/画像/音声入出力部)
6A
6B (タッチパネル)
7
8
9
202
204
205
207
T1
T2
T3 (I/F端子)
CCD
S/H
AGC
ビデオA/D
タイミングジェネレータ
カメラコントローラ
ビデオD/A
表示コントローラ
表示部
コンポジット信号処理
A/D
D/A
MIC
Video
HP/LINE
外部インターフェイス
操作部
電源ブロック
VF
VFドライブ
データ処理/システムコントロール
バッファメモリ
動き検出
メモリ
MPEG2 ビデオ信号処理 (JPEG)
音声圧縮ENC/DEC
ビデオコントローラ
プログラムメモリ
MD-DATA2 ENC/DEC
MD-DATA1 ENC/DEC
RF 信号処理
二値化
サーボ回路
ドライバコントローラ

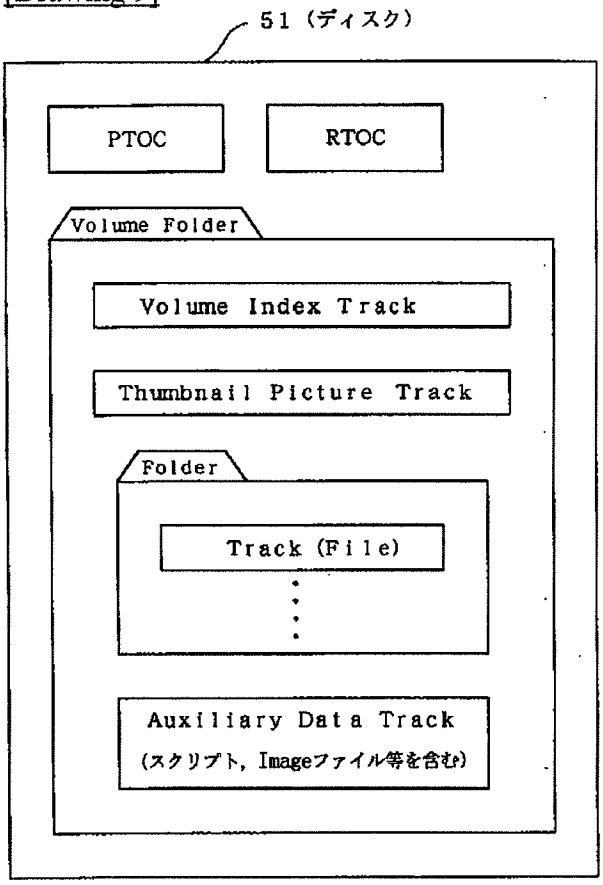
[Drawing 5]


4（メディアドライブ部：MD-DATA2ブロック）
41
42
バッファメモリ
115
スクランブル EDCエンコード
DATAr
116
ECC処理
DATAp
117
デスクランブル EDCデコード
121
転送クロック発生
114
118
RLL(1,7) 変調
106
RLL(1,7) 復調
105
ビタビデコーダ
CLK
ドライバ コントローラ
46
45
104
イコライザ/PLL
109
A/Bトラック検出
110
ADIP デコーダ
111
CLV プロセッサ
SPE
103
AGC/クランプ
108
ADIP BPF
FE, TE
サーボプロセッサ
119
磁気ヘッド駆動
120
レーザドライバ
2値化
43
GFM
マトリクスアンプ
112
101
RFアンプ
107
44
113
サーボドライバ
5（デッキ部）
51
52
53
54
55

[Drawing 7]

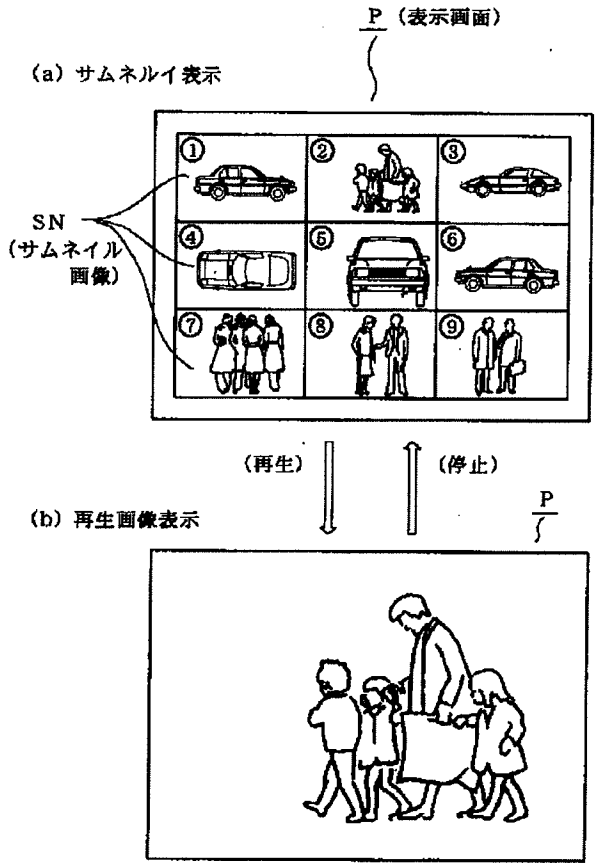


[Drawing 9]

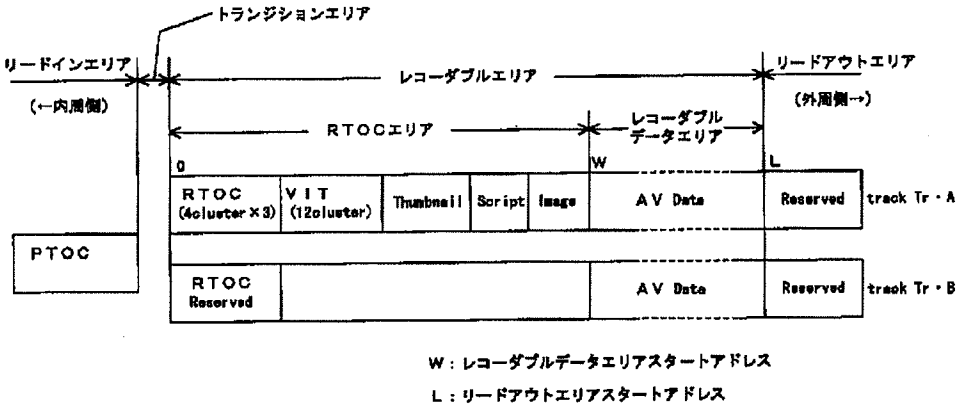


ディスク内のデータ構造

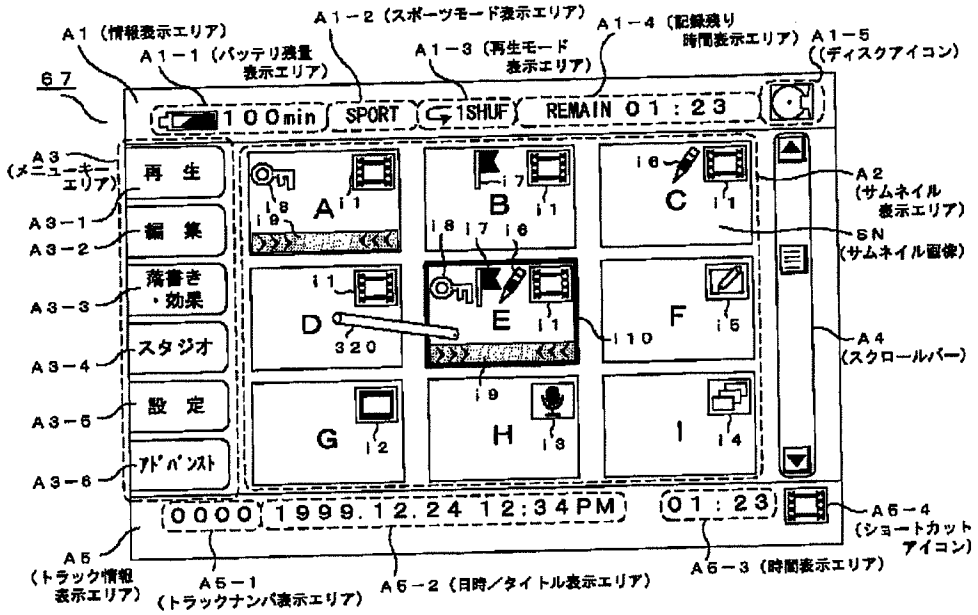
[Drawing 17]



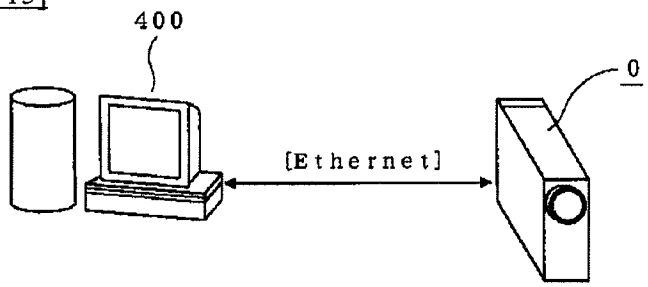
[Drawing 10]



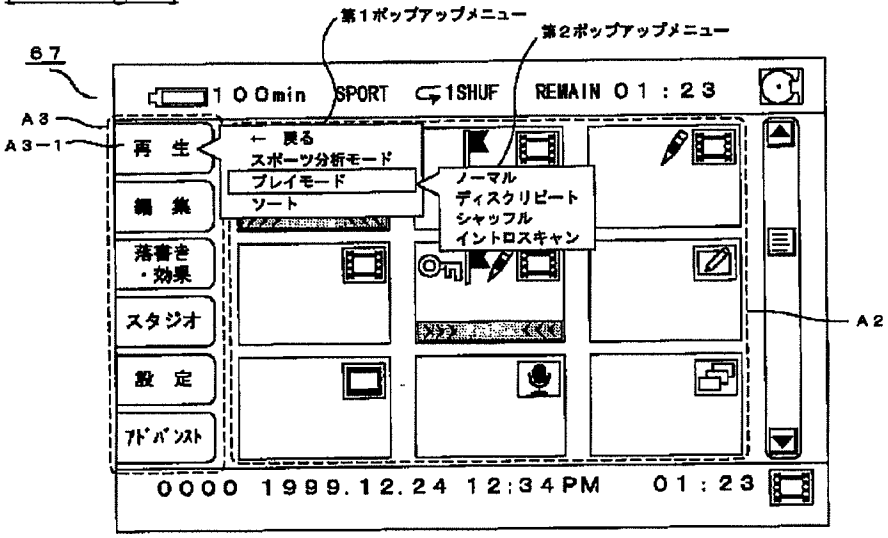
[Drawing 11]



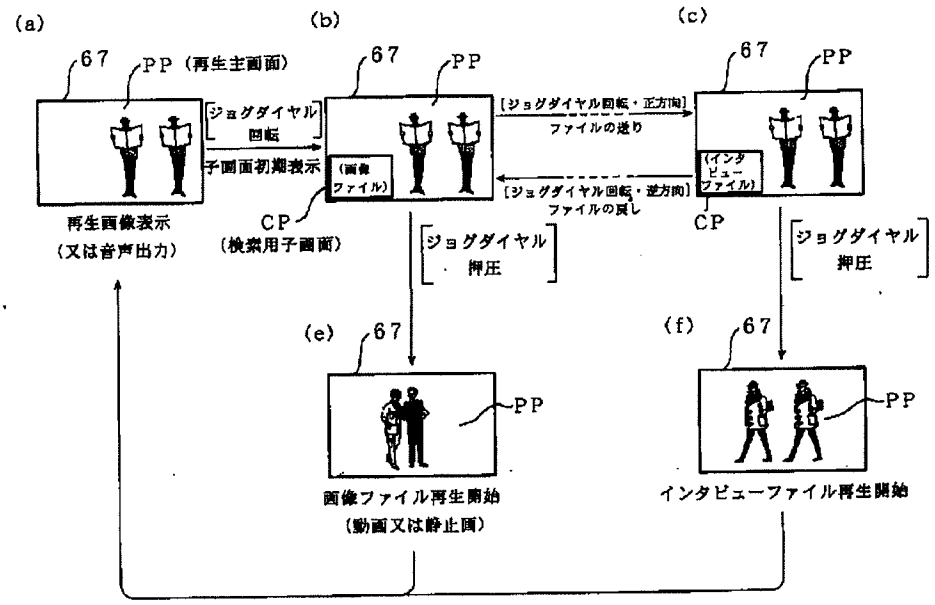
[Drawing 15]



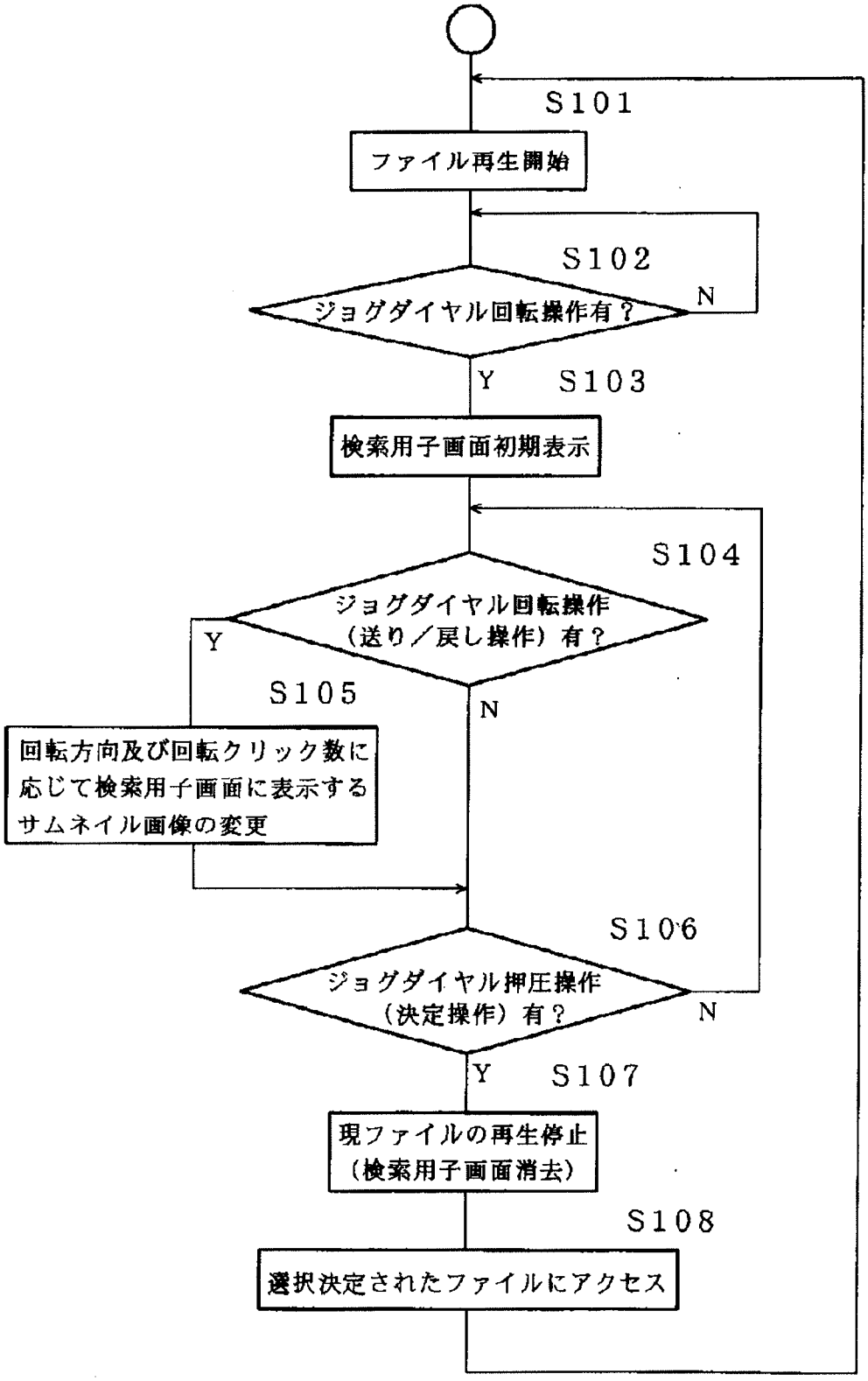
[Drawing 12]



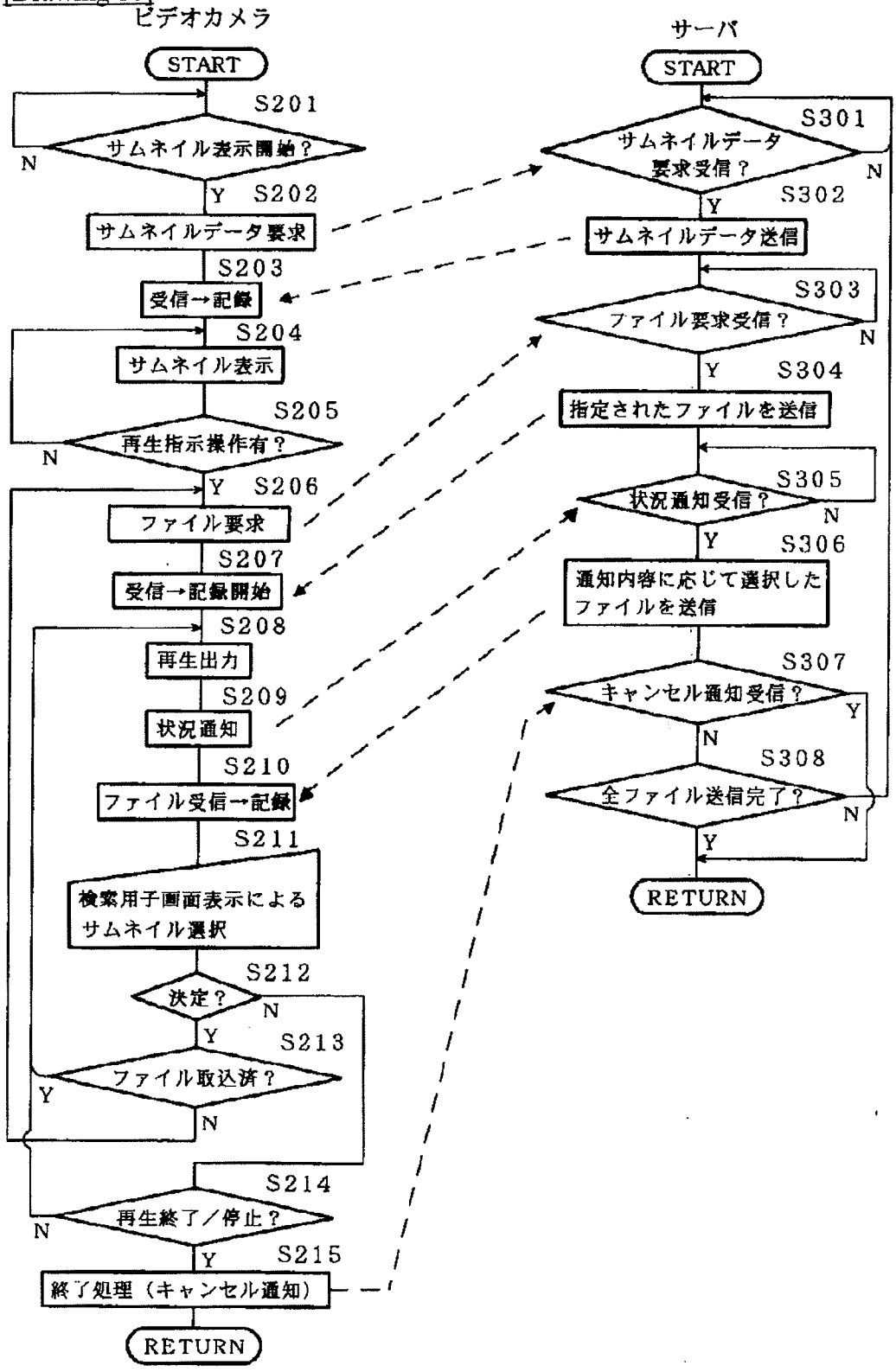
[Drawing 13]


(a)
(b)
(c)
67
PP（再生主画面）
ジョグダイヤル
回転
子画面初期表示
再生画像表示
（又は音声出力）
（画像
ファイル）
CP
（検索用子画面）
[ジョグダイヤル回転・正方向]
ファイルの送り
[ジョグダイヤル回転・逆方向]
ファイルの戻し
（インタ
ビュー
ファイル）
CP
ジョグダイヤル
押圧
ジョグダイヤル
押圧
(e)
(f)
画像ファイル再生開始
（動画又は静止画）
インタビューファイル再生開始

[Drawing 14]


S101
ファイル再生開始
S102
ジョグダイヤル回転操作有？
N
Y
S103
検索用子画面初期表示
S104
ジョグダイヤル回転操作
（送り／戻し操作）有？
Y
S105
N
回転方向及び回転クリック数に
応じて検索用子画面に表示する
サムネイル画像の変更
S106
ジョグダイヤル押圧操作
（決定操作）有？
N
Y
S107
現ファイルの再生停止
（検索用子画面消去）
S108
選択決定されたファイルにアクセス

[Drawing 16]


ビデオカメラ
サーバ
START
S201
サムネイル表示開始？
N
Y
S202
サムネイルデータ要求
S203
受信→記録
S204
サムネイル表示
S205
再生指示操作有？
N
Y
S206
ファイル要求
S207
受信→記録開始
S208
再生出力
S209
状況通知
S210
ファイル受信→記録
S211
検索用子画面表示による
サムネイル選択
S212
決定？
N
Y
S213
ファイル取込済？
Y
N
S214
再生終了／停止？
N
Y
S215
終了処理（キャンセル通知）
RETURN
START
S301
サムネイルデータ
要求受信？
N
Y
S302
サムネイルデータ送信
S303
ファイル要求受信？
N
Y
S304
指定されたファイルを送信
S305
状況通知受信？
N
Y
S306
通知内容に応じて選択した
ファイルを送信
S307
キャンセル通知受信？
Y
N
S308
全ファイル送信完了？
N
Y
RETURN